

FTI CONSULTING REPORT – FEBRUARY 2021

# Economic assessment of the impact of the new Open Access policy developed by UK Research and Innovation



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### Glossary

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## Glossary

A2R	Access to Research.
Academic publishers	Publishers of scholarly journals and academic books.
AHRC	The Arts and Humanities Research Council.
AHSS	Arts, Humanities and Social Sciences.
AM	Accepted manuscript.
APC	Article publication charge.
BBSRC	The Biotechnology and Biological Sciences Research Council.
BEIS	UK Department for Business, Energy and Industrial Strategy.
BPC	Book publication charge.
CC BY	Creative Commons attribution licence.
CC BY ND	Creative Commons attribution no-derivatives licence.
COAF	Charity Open Access Fund.
CPC	Chapter publication charge.
CUP	Cambridge University Press.
DOAB	Directory of Open Access Books.
EPSRC	The Engineering and Physical Sciences Research Council.
ESRC	The Economic and Social Research Council.
EU	European Union.
FTI Consulting	FTI Consulting LLP.
GBP	British pounds.

HE	Higher education.
HEI	Higher education institution.
IOP	Institute of Physics Publishing.
Jisc	The Joint Information Systems Committee.
LMICs	Low and Middle Income Countries.
Monograph	A scholarly or highly specialised work on a single argument or theme, for subject specialists rather than a general audience.
MRC	The Medical Research Council.
NERC	The Natural Environment Research Council.
NGOs	Non-governmental organisations.
OA	Open access: a set of principles and a range of practices which ensure that the published outputs of academic research are made available to the public free of charge and free of other access barriers as soon and as widely as possible.
OUP	Oxford University Press.
PA	The Publishers Association.
PP	Pre-print.
Publications	Journal articles and academic books.
QR	Quality-related (research funding).
R&D	Research and development.
RCUK	Research Councils UK.
RCUK Policy	RCUK Policy on Open Access and Supporting Guidance (2013).
REF	Research Excellence Framework.
Research article	A peer-reviewed research publication in a scholarly journal.
STFC	The Science and Technology Facilities Council.
STM	Science, Technology and Medicine.

UK	United Kingdom.
UK authors	Authors affiliated with UK (higher education) institutions.
UK journals	Scholarly journals owned by a UK-based entity (publisher, society or body).
UKRI	UK Research and Innovation.
UKRI Policy	Proposed new UKRI OA policy for research articles and long-form research publications (2020).
UKRI Review	UKRI Open Access Review.
US	United States of America.
UUK	Universities UK.
VOR	Version of record.

## 1. Introduction

### Introduction

- 1.1 This report has been prepared by FTI Consulting LLP (“**FTI Consulting**”) for the Publishers Association (the “**PA**”) in connection with the new open access (“**OA**”) policy that has been developed by UK Research and Innovation (“**UKRI**”) (the “**UKRI Policy**”).<sup>1</sup> In particular, we have been asked to assess the economic impact of the UKRI Policy using the existing policy framework as a benchmark.
- 1.2 We set out background to this assignment and our instructions in further detail below.

### Background

- 1.3 The United Kingdom (the “**UK**”) is known for its world-leading research and scholarship. Its research output has been growing steadily over the years and UK publications are some of the most cited in the world.<sup>2</sup> In 2018, authors affiliated with UK institutions (“**UK authors**”) produced 7% of all research and 14% of the most-cited research in the world.<sup>3</sup>

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<sup>1</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)).

<sup>2</sup> From 2009 to 2018, UK research output grew steadily at an average rate of approximately 3% per year. Source: FTI Consulting analysis of data on global research publications published by the UK Department for Business, Energy and Industrial Strategy (BEIS). See: BEIS (2019) *International comparison of the UK research base 2019* (available [here](#)).

<sup>3</sup> BEIS (2019) *International comparison of the UK Research Base 2019* (available [here](#)), pages 7-8.

- 1.4 The UK Government is committed to the principle of OA and that the outputs of publicly-funded research should be freely accessible and widely available to readers. Indeed, the UK offers one of the highest proportions of OA content in the world<sup>4</sup> and the Government is committed to pursuing a transition to greater OA in a way that is sustainable, affordable and collaborative.<sup>5</sup>
- 1.5 Progress towards greater OA in the UK has been possible through the combined efforts of stakeholders from across the scholarly communications industry, including researchers, higher education institutions (“**HEIs**”), funding bodies, academic publishers, university libraries and other stakeholders.<sup>6</sup> There is a deep commitment among all stakeholders within the sector, including academic publishers, to deliver OA for publicly funded research in the UK and transitional arrangements such as ‘transformative agreements’<sup>7</sup> are already supporting growth in the share of research articles that are freely available online upon publication for readers to use.
- 1.6 UKRI is a non-departmental public body and the largest public funder of research in the UK. It brings together the UK’s seven disciplinary Research Councils,<sup>8</sup> Research England,<sup>9</sup> and the UK’s innovation agency, Innovate UK. It receives approximately GBP 7 billion in funding each year from the Department for Business, Energy and Industrial Strategy (“**BEIS**”) and a key part of its role is to distribute this funding to research organisations through its constituent councils.

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<sup>4</sup> See, for example: Universities UK (2017) *Monitoring the transition to open access* (available [here](#)), pages 4 and 26.

<sup>5</sup> See, for example: the Tenth Report of the Select Committee on Science and Technology in 2004 (available [here](#)); letters from the UK Government to Professor Tickell in 2016 and 2019 (available [here](#) and [here](#)); and a recent speech by Amanda Solloway, Minister for Science, Research and Innovation at Vitae Connections Week 2020 (available [here](#)).

<sup>6</sup> See, for example: Universities UK (2017) *Monitoring the transition to open access* (available [here](#)), page 4.

<sup>7</sup> See ¶¶5.18-5.21 below. Transformative agreements generally combine access to subscription-based content with the ability for an institution to publish its research on an OA basis.

<sup>8</sup> The Arts and Humanities Research Council (“**AHRC**”), the Biotechnology and Biological Sciences Research Council (“**BBSRC**”); the Engineering and Physical Sciences Research Council (“**EPSRC**”); the Economic and Social Research Council (“**ESRC**”); the Medical Research Council (“**MRC**”); the Natural Environment Research Council (“**NERC**”); and the Science and Technology Facilities Council (“**STFC**”).

<sup>9</sup> Research England is responsible for supporting research and knowledge exchange at higher education institutions in England.

- 1.7 In 2018, UKRI launched a review into the existing OA policy that applies to research articles that acknowledge funding from the UK's disciplinary Research Councils (the "**UKRI Review**"). The Research Councils were previously coordinated by an umbrella body known as Research Councils UK ("**RCUK**") and the current policy is therefore known as the "**RCUK Policy**".<sup>10</sup>
- 1.8 The purpose of the UKRI Review was to develop a single OA policy that would apply to all peer-reviewed research publications that acknowledge funding from UKRI (including research articles but also other long-form research publications); and to support a faster transition to greater OA.<sup>11</sup> It is expected that the UKRI Review will inform the OA policy for research outputs submitted to the next higher education ("**HE**") funding review, known as 'REF-after-REF2021'.<sup>12</sup>
- 1.9 UKRI consulted on its new OA policy in early 2020. Among other things, UKRI proposed that peer-reviewed research articles that acknowledge funding from UKRI should be made accessible immediately upon publication, without an embargo, free of charge and under a licence that maximises the opportunity for re-use.<sup>13</sup> UKRI also proposed new restrictions on monographs (which are a type of specialised academic book), book chapters and edited collections.<sup>14</sup>
- 1.10 The new UKRI Policy is broadly aligned with the principles of Plan S which represents OA principles developed by a coalition of national and other charitable research funding organisations in Europe known as 'cOAlition S'.<sup>15</sup> cOAlition S is driving initiatives to make full and immediate OA for research publications a reality. However, it does not have the responsibilities of a policy-making body.
- 1.11 Publishers, learned societies and university presses are among stakeholders who have expressed concerns about the new UKRI Policy.<sup>16</sup> In particular, academic publishers are concerned that the UKRI Policy could have significant adverse impacts on the research and scholarly communications ecosystem in the UK and affect the long-term sustainability of the sector and the position of the UK as a global hub for research and development ("**R&D**").

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<sup>10</sup> RCUK (2013) *Policy on Open Access and Supporting Guidance* (available [here](#)).

<sup>11</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶21 and ¶27.

<sup>12</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶29.

<sup>13</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), page 10 (summary box).

<sup>14</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶¶7-9.

<sup>15</sup> See: <https://www.coalition-s.org/about/>

<sup>16</sup> See, for example, Oxford University Response to UKRI Open Access Review Consultation (available [here](#)), responses to questions 37 and 66.

- 1.12 There are also concerns that the UKRI Policy would exacerbate existing challenges facing the HE sector – which is already managing significant financial and operational pressures due to the ongoing coronavirus pandemic<sup>17</sup> and could face further disruption following the UK’s recent departure from the European Union (“EU”).<sup>18</sup>

### **Our instructions**

- 1.13 We have been instructed by the Publishers Association to conduct an economic assessment of the impact of the UKRI Policy. In particular, we have been asked to:

- (1) assess the impact of specific policy conditions that have been proposed for journal articles and long-form research publications, using the existing policy framework as a benchmark;
- (2) consider the impact of the UKRI policy on different groups of stakeholders within the scholarly communications ecosystem;
- (3) understand the immediate economic impact of the proposed policy and how this might change in the future in light of industry trends; and
- (4) compare the impact of the policy proposals against UKRI’s stated policy objectives.

### **Sources of information**

- 1.14 We have relied upon a wide range of publicly available reports, studies and data to undertake our analysis. We have also relied on information provided to us by publishers of scholarly journals and academic books (“**academic publishers**”) for the purpose of this project. We set out a full list of sources in **Appendix 1**.

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<sup>17</sup> See, for example, Frontier Economics (2020) *UK higher education and Covid-19* (available [here](#)).

<sup>18</sup> See, for example, Nature (2021) *What the landmark Brexit deal means for science* (available [here](#)).

### Structure of this report

- 1.15 The remainder of this report is structured as follows:
- **Section 2** sets out our key findings ‘on a page’;
  - **Section 3** sets out a summary of our conclusions;
  - **Section 4** describes the academic and scholarly communications ecosystem in the UK;
  - **Section 5** explains the publishing models used by academic publishers in the UK;
  - **Section 6** summarises the main proposals under the new UKRI Policy;
  - **Section 7** considers the economic impact of proposed restrictions for research articles;
  - **Section 8** considers the economic impact of proposed restrictions for monographs; and
  - **Section 9** sets out restrictions and limitations to this report.

## 2. Key findings

- 2.1 The UK's academic publishing sector is world-leading and **generates nearly 60% more value for the UK economy than it earns in profits**. The UKRI Policy will affect the ability of all types of academic publishers – commercial organisations, learned societies and university presses alike – to contribute to the UK's research ecosystem.
- 2.2 If the proposed UKRI Policy is pursued, the estimated loss to UK-based journals would be in the order of GBP 292 million per year or **approximately GBP 2.0 billion in the period from 2022 to 2027**. For some, monograph publishing will become unsustainable. This would prevent publishers from making the necessary investment to maintain the quality and impact of UK research, and perhaps even lead to some smaller publishers going out of business. The associated **loss of economic output would be in the order of GBP 3.2 billion**.
- 2.3 A significant proportion of the loss to UK-based journals would represent the **loss of export revenue**, with **foreign entities standing to gain the most financially** from the UK transition. Indeed, there would be a substantial 'first-mover' disadvantage for the UK, as a research-intensive nation, to transition at a faster rate than the rest of the world.
- 2.4 The UKRI Policy could also mean an increase in **expenditure for research intensive universities in the UK in the order of GBP 130-140 million per annum**, if a significant number of journals were to transition to 'Fully OA' in response to the UKRI Policy. In this scenario, the 'Top 20' most research-intensive universities in the UK would need to cover approximately half of the anticipated increase in publication costs.
- 2.5 Moreover, UK libraries would still need to subscribe to content that is not currently available on an OA-basis. The cost saving associated with certain journals or monographs transitioning to 'Fully OA' would be modest, in the order of a few million pounds per year.
- 2.6 Importantly, the UKRI Policy would inhibit scholars' ability to conduct research in their respective disciplines in an effective and accurate way, with an associated cost to research productivity. **Indeed, the Policy could dilute the benefits that could be expected from OA to the published outputs of academic research. Ultimately, UK research would risk becoming less impactful and less well-regarded, with a knock-on effect on the UK's standing as a global research hub.**

### 3. Summary of conclusions

#### Introduction

- 3.1 In this Section, we set out a summary of our conclusions.
- 3.2 We first provide a brief introduction to the academic publishing and scholarly communications ecosystem in the UK; and describe the role of academic publishers within it. We then discuss the impact of the UKRI Policy on: (1) research articles; and (2) monographs.

#### Academic publishing and scholarly communications in the UK

- 3.3 Academic publishing connects scholars with their communities. It helps researchers uncover new ideas and findings, and ensures that results are validated, presented effectively and easily discoverable. It is an integral part of the research cycle and at the heart of the wider scholarly communications system that brings together researchers, HEIs, funding bodies, academic publishers, university libraries, and users of research.
- 3.4 Research articles in scholarly journals are a key medium for the dissemination and debate of new research, together with long-form publications such as monographs and other types of academic books. Monographs are highly specialised books on a single argument or theme, typically intended for subject specialists rather than general audiences. They form a particularly important part of the reading and output of humanities and social sciences scholars.
- 3.5 In 2018, researchers around the world published approximately 3.1 million journal articles and academic books (up from 2.5 million in 2010).<sup>19</sup> UK authors accounted for around 7% of world output, with 55% of their publications involving international collaboration.<sup>20</sup>

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<sup>19</sup> SCImago Journal & Country Rank portal (retrieved on 14.12.2020. Available [here](#)). BEIS (2019) *International comparison of the UK research base* (available [here](#)), page 7.

<sup>20</sup> BEIS (2019) *International comparison of the UK research base* (available [here](#)), page 10.

### **Role of academic publishers**

- 3.6 Academic publishers represent a diverse industry of private and independent-sector organisations that support researchers to validate results, present them effectively, and disseminate findings among interested readers.
- 3.7 Editorial teams guide authors through the submission, peer review and revision process and play an important part in ensuring the quality and integrity of published research. High standards for acceptance and rejection help build a reliable canon of information that subsequent researchers can trust. Publication in a well-regarded and highly-cited journal offers a form of certification and registers ownership of research findings and ideas.
- 3.8 Once a manuscript has been accepted for publication, editorial teams carry out pre-production checks, including checks for copyright permissions and plagiarism. Production involves copy-editing and type-setting the manuscript, and producing print and electronic formats of articles and books.
- 3.9 Publishers also help to promote research and ensure that marketing material is optimised for search engines to promote discovery. Editorial teams share post-publication data on downloads, citations and print sales with authors and issue revisions and corrections as needed.
- 3.10 In many cases, academic publishers work with authors and institutions from around the world to publish research. They are therefore affected by research policies implemented across a wide range of jurisdictions. Those who use the published outputs of academic research are also spread across the globe and represent a wide range of sectors, including academia, private business, governmental bodies, and charitable organisations.

### **Impact of the UKRI Policy in respect of research articles**

- 3.11 The new UKRI Policy means that, going forward, research articles that acknowledge UKRI funding will be made available free of charge via an online publishing platform or an institutional or subject-matter repository for users to view and download immediately upon publication in a peer-reviewed format and with a licence that allows maximum re-use.<sup>21</sup>

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<sup>21</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), page 10 (summary box).

- 3.12 As we explain in Section 7, the new UKRI Policy will affect:<sup>22</sup>
- (1) the incentives that university libraries and other subscribers have to pay subscriptions to scholarly journals; and
  - (2) the willingness of authors, universities, and funders to pay fees to publish research articles on an OA basis.
- 3.13 This will, in turn, affect the ability of academic publishers to recover the cost of their investment in publishing research with considerable knock-on effects on other stakeholder groups within the research and scholarly communications industry in the UK and on ‘UK Plc’. We discuss the impact of the UKRI Policy on ‘UK Plc’ and on other stakeholder groups (including publishers, research intensive universities, university libraries, and researchers) in turn below.

*Impact on ‘UK Plc’*

- 3.14 The UKRI Policy will affect the ability of all types of academic publishers – commercial organisations, learned societies and university presses alike – to recover the cost of their investment in publishing research through subscription fees and publishing charges.
- 3.15 We estimate that the loss of subscription revenue to UK journals<sup>23</sup> resulting directly from the UKRI Policy would be in the order of GBP 151 million per annum or GBP 1.0 billion in the period from 2022 to 2027.<sup>24, 25</sup> A significant proportion of this will represent the loss of export revenue,<sup>26</sup> with foreign entities standing to gain the most financially from the UK transition.

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<sup>22</sup> See ¶¶7.6-7.8 below.

<sup>23</sup> Journals owned by a UK-based entity (publisher, society or body).

<sup>24</sup> See ¶¶7.66-7.69 below.

<sup>25</sup> As we explain in Section 7, we simulate the impact of the UKRI Policy using alternative assumptions about the share of content that would be affected by the UKRI Policy at the point of implementation. Our scenarios reflect different interpretations about the share of content produced by UK authors that is available online (whether in line with publishers’ policies for posting research articles via the ‘Green’ route or otherwise). They also reflect a degree of uncertainty about the share of content produced by UK authors that is funded by UKRI. Based on information provided by academic publishers, we understand that this share is material and will, in any case, influence the broad OA policy direction for other funding bodies in the UK.

<sup>26</sup> See ¶7.47 below.

- 3.16 The impact of the UKRI Policy would be further compounded by dynamic effects, such as UK Government plans to increase research funding; individual researchers being more motivated to post articles online as a result of the Policy; and other funders in the UK and abroad adopting similar policies.<sup>27</sup> We estimate that the UKRI Policy would ultimately result in a loss of revenue to UK journals in the order of GBP 292 million per annum or GBP 2.0 billion in the period from 2022 to 2027 when such dynamic effects are accounted for.<sup>28</sup>
- 3.17 A loss of revenue to UK journals would have an impact on wider economic activity. For example, it is estimated that a decrease in the final demand for publishing services of GBP 1 million would decrease economic output in the UK by approximately GBP 1.6 million.<sup>29</sup> This suggests that a loss of publishing revenue of GBP 2.0 billion in the period from 2022 to 2027 would lead to a loss of output of approximately GBP 3.2 billion over the same period on a non-discounted basis.<sup>30</sup>
- 3.18 The extent of the impact on economic activity will ultimately depend on the way in which publishers respond to the loss of revenue and the eventual impact on: (1) gross profit margins; (2) the value of supply chain purchases; and (3) the number of salaried employees. Nevertheless, it is estimated that the publishing sector creates additional value to the UK economy at a rate of approximately 1.6 times its earnings (profits).<sup>31</sup> Publishing generates additional employment at a comparable rate.

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<sup>27</sup> The UKRI Policy is broadly aligned with the principles of Plan S, which represents a set of OA principles supported by a coalition of national and other charitable research funding organisations in Europe (cOAlition S) who are driving the initiative to make full and immediate open access for research publications a reality. It is therefore plausible that the UKRI Policy would set a precedent for other funding bodies in Europe.

<sup>28</sup> See ¶¶7.70-7.72 below.

<sup>29</sup> Office of National Statistics (2016) *Input output tables* (available [here](#)), Output multiplier for publishing services (1.588).

<sup>30</sup> GBP 2.0 billion x 1.588 = GBP 3.2 billion.

<sup>31</sup> Office of National Statistics (2016) *Input output tables* (available [here](#)), GVA multiplier for publishing services (1.582).

- 3.19 However, the impact of the UKRI Policy will extend beyond standardised measures of economic output, value add, and employment. As we explain below,<sup>32</sup> the UKRI Policy will risk the viability of the ecosystem that it relies upon to produce peer-reviewed research and dilute the value of research that it is looking to provide access to. It will therefore also dilute the benefits that could be expected from wider access to the published outputs of academic research – including enhancements to productivity, competitiveness and economic growth – and the attractiveness of the UK as a global hub for research. Even a small change in the value of published research may have a significant impact on key sectors of the economy.

*Impact on academic publishers*

- 3.20 Publishers may transition some of the most affected journals from a subscription-based publishing model to 'Fully OA' to mitigate the impact of the UKRI Policy. In this case, authors and their institutions would need to pay to publish, and research intensive universities would come under new pressure to find additional funding to enable their academic staff to publish.
- 3.21 However, most scholarly journals work with authors from around the world, many of whom are not in receipt of funding to cover the cost of OA publishing. Such journals rely on subscription income from their global readership to recover their costs – and will not be in a position to transition their business models from subscription-based to 'Fully OA' in the immediate term in response to the UKRI Policy, even if this resulted in a material loss of revenue.
- 3.22 Many journals will therefore need to explore approaches for containing costs in line with the loss of revenue. In some cases, the UKRI Policy could fundamentally undermine the financial viability of certain journals, particularly if other funding bodies in the UK and abroad chose to follow the policy blueprint set by UKRI. The Policy would therefore risk the viability of the ecosystem that it relies upon to provide the publishing services that enable the validation and improvement of content that results in peer-reviewed articles.

*Impact on the quality of published research*

- 3.23 Cost containment would impact standards for acceptance and rejection for scholarly journals and, in turn, compromise the quality and integrity of published research.<sup>33</sup>

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<sup>32</sup> See ¶¶3.20-3.25 and, also, ¶¶3.33-3.34 below.

<sup>33</sup> Publishers have advised throughout the process of preparing this report that they would continue to uphold high standards of peer review and research integrity.

- 3.24 This would have considerable knock-on effects on the wider research system. Publication in a scholarly journal would no longer send a strong signal of quality or serve as a good way of certifying and registering research findings. As a result, readers and researchers would need to invest more of their own time to assess the quality and robustness of research, with an associated cost to productivity. Errors in assessing quality and robustness could lead to reliance on ‘second best’ content and affect the value of subsequent research.
- 3.25 Ultimately, the UKRI Policy would dilute the value of the research that it is looking to provide access to – and the benefits that could be expected from wider access to the published outputs of academic research. In particular, the Policy would dampen productivity not only within the research sector but also other industries that rely on research to maintain their global competitiveness.

*Impact on research intensive institutions in the UK*

- 3.26 Research intensive universities would come under new pressure to find additional funding to enable their academic staff to publish in those journals that transition their business models to ‘Fully OA’ as a result of the UKRI Policy.
- 3.27 We understand that the number of journals that are likely to transition to ‘Fully OA’ will depend on journal specialism and the level of funding that is made available for OA publishing. It is challenging to estimate how many journals may ultimately choose to transition in a robust way, although we understand that the number is likely to be low (unless additional funding is made available to support a transition to greater OA).
- 3.28 We have considered the increase in expenditure for research intensive universities in the UK in the event that a considerable number of journals were to transition to ‘Fully OA’ in response to the UKRI Policy. We estimate that the increase in expenditure could be in the order of GBP 130-140 million per annum depending on the prevailing level of OA publishing charges and assuming that a considerable number of journals choose to transition.<sup>34</sup>

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<sup>34</sup> See ¶¶7.75-7.82 below.

- 3.29 Research intensive universities would need to cover a disproportionately large share of this cost. Assuming that the total cost burden would be distributed among universities in proportion with their existing share of publications implies that the ‘Top 20’ most research intensive universities in the UK would need to cover approximately half of the increase in publication costs.<sup>35</sup> At present, it is unclear whether research organisations would be able to afford this increase in OA publishing costs without additional support and funding.<sup>36</sup>

*Impact on university libraries across the UK*

- 3.30 Libraries would still need to subscribe to content that is not available on an OA-basis. We estimate that the cost saving associated with certain journals transitioning to ‘Fully OA’ would be modest, in the order of a few million pounds per year.<sup>37</sup>
- 3.31 These costs may not be transitional and could extend some time into the future, depending on the pace of adoption of OA around the world.

*Impact on researchers affiliated with UK institutions*

- 3.32 In some cases, certain well-regarded journals with strong brands and weak links to UKRI may choose to not accept the terms of the UKRI Policy. This would exclude UK authors from publishing in well-regarded journals, with potential knock-on effects on the standing and prospects of UK researchers and their institutions. In turn, this would impact researchers’ future employment and collaboration prospects and discourage talented academics from working in the UK – or even collaborating with UK-based scholars.
- 3.33 Ultimately, UK research would risk becoming less impactful and less well-regarded, with a knock-on effect on the UK’s standing as a global research hub.

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<sup>35</sup> See ¶7.83 below.

<sup>36</sup> See ¶7.84 below.

<sup>37</sup> See ¶7.86 below.

### Impact of the UKRI Policy in respect of monographs

- 3.34 The new UKRI Policy means that, going forward, monographs that acknowledge funding from UKRI will be made available to view and download for free via an online publishing platform or institutional or subject-matter repository within 12 months of publication in their final, published format (or similar).<sup>38</sup>
- 3.35 As we explain in Section 8, it is unclear how many monographs are intended to be within scope of the UKRI Policy.<sup>39</sup> However, we assume that the intention is to include a meaningful number of monographs in scope of the UKRI Policy and, indeed, the OA policy for the next REF.<sup>40</sup>
- 3.36 On this basis, we find that the UKRI Policy will affect:<sup>41</sup>
- (1) university libraries' and other specialised buyers' incentives to purchase monographs; and
  - (2) authors', universities', and funders' willingness to pay fees for OA publishing.
- 3.37 We find that this will have considerable knock-on effects on other stakeholder groups within the research and scholarly communications industry.<sup>42</sup> As we explain in Section 8:
- (1) The UKRI Policy will affect publishers' ability to recover the cost of their investment in publishing monographs. As a result, commercially-minded publishers will need to exercise caution in taking on book projects that are not in receipt of funding to cover the cost of publishing.
  - (2) Universities will, in turn, come under new pressure to find funding to enable their academic staff to publish. UKRI has not confirmed if additional funding will be available, meaning that there will be an impact or an opportunity cost on other activities within the university sector.
  - (3) Ultimately, researchers may have fewer opportunities to write academic books. This will affect researchers' career progression and prospects and, ultimately, the UK's standing as a global research hub.

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<sup>38</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), page 11 (summary box).

<sup>39</sup> See ¶¶8.41-8.42 below.

<sup>40</sup> See ¶¶8.46-8.47 below.

<sup>41</sup> See ¶¶8.48-8.50 below.

<sup>42</sup> See ¶8.51 onwards.

## 4. Academic publishing and scholarly communications in the UK

### Introduction

- 4.1 In this Section, we provide an introduction to academic publishing in the UK and discuss the roles of different groups of stakeholders in the UK research and scholarly communications sector. We discuss in turn the roles played and the value created by researchers, HEIs, funding bodies, different types of publishers, libraries, and readers. We note that each group of stakeholders operates within the context of a much wider, international market.

### Academic publishing

- 4.2 Academic publishing connects scholars with their readers and communities. It helps researchers uncover new ideas and findings, and ensures that results are validated, presented effectively and easily discoverable. It is an integral part of the research cycle and at the heart of the wider scholarly communications system.
- 4.3 Research articles in scholarly journals are a key medium for the dissemination and debate of new research, along with long-form publications such as monographs and edited collections.
- 4.4 Monographs (also sometimes referred to as academic books) are highly specialised works on a single argument or theme, intended for subject specialists rather than a general audience.<sup>43</sup> They form a particularly important part of both the reading and the output of humanities and social sciences scholars, and remain an important vehicle for dissemination and debate of new research.<sup>44</sup>

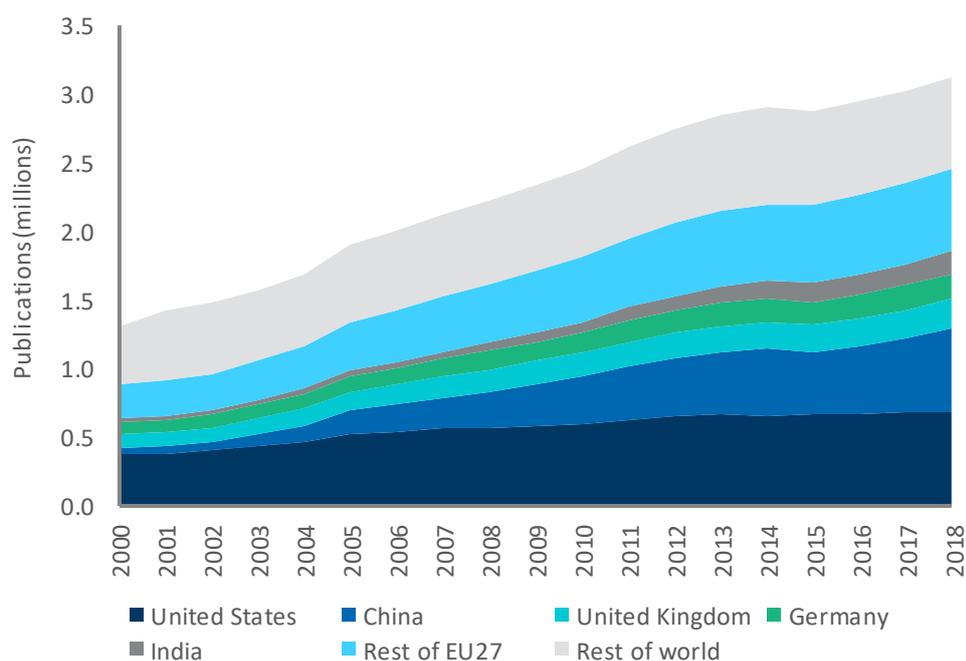
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<sup>43</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph: Survey results 2019* (available [here](#)), page 7.

<sup>44</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph: Survey results 2019* (available [here](#)), page 3.

- 4.5 The total number of journal articles and academic books (together, “**publications**”) produced by researchers worldwide has increased over time, as illustrated in Figure 4-1 below. Countries such as the United States (“**US**”), the UK and Germany have long been leaders in research. However, countries such as China, India and the Rest of EU27<sup>45</sup> have also made significant advances in recent years in terms of the volume of content published by their researchers.

**Figure 4-1: Research output by country (millions of publications)**



*Notes: Publications represent the sum total of journal articles (including reviews and conference papers) and academic books.*

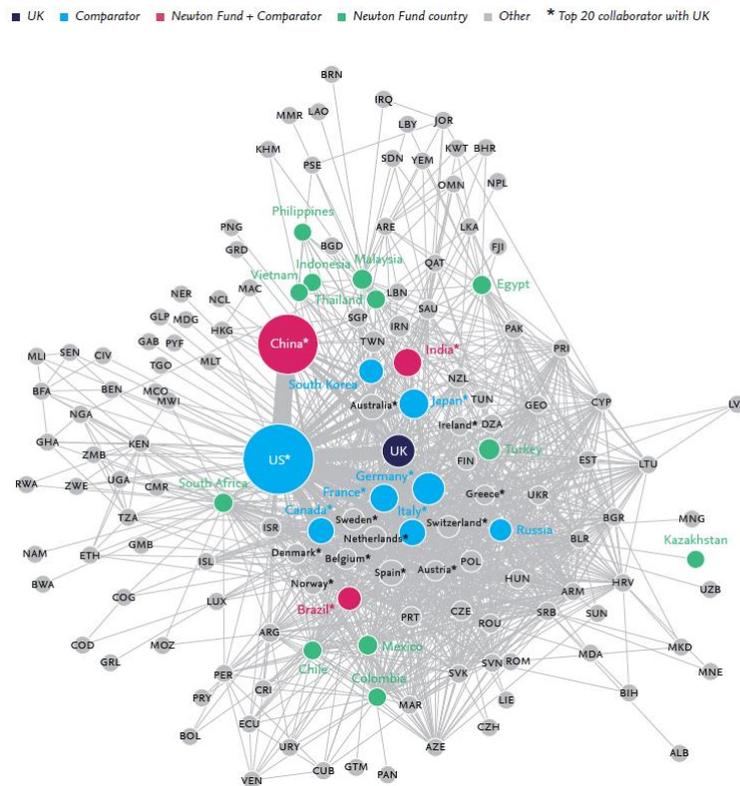
*Source: FTI Consulting analysis of data reported by BEIS.<sup>46</sup>*

<sup>45</sup> The 27 Member States of the European Union (excluding Germany).

<sup>46</sup> BEIS (2019) *International comparison of the UK research base* (available [here](#)).

- 4.6 In 2018, there were approximately 3.1 million journal articles and academic books published in the world (up from 2.5 million in 2010).<sup>47</sup> UK authors accounted for around 7% of world output (that is, approximately 210,000 publications in 2018).<sup>48</sup> 55% of their publications involved international collaboration.<sup>49</sup>
- 4.7 Figure 4-2 below illustrates the international research collaborations that took place around the world in respect of research articles from 2011 to 2015.

**Figure 4-2: International research collaborations around the world (2011-2015)**



*Notes: Node size is proportional to the number of research articles involving collaboration. Line thickness represents the number of collaborations between linked countries.*

*Source: Elsevier (2017) International comparative performance of the UK research base, page 81.*

<sup>47</sup> Research articles include reviews and conference proceedings.

<sup>48</sup> FTI analysis of data published by BEIS. See: BEIS (2019) *International comparison of the UK research base* (available [here](#)).

<sup>49</sup> BEIS (2019) *International comparison of the UK research base* (available [here](#)), page 10.

## Researchers

- 4.8 Research publications are usually authored by researchers affiliated with universities, colleges or research institutes, although some researchers are also employed by the private and independent sectors.<sup>50</sup> Scholarly research conducted by academics in the UK is usually funded by a range of specialised funding bodies, including public agencies, universities, charities, learned societies and commercial entities.
- 4.9 Researchers in the UK work across a wide range of academic disciplines to generate ideas, design projects, perform studies and analyse results. Where studies generate novel findings, researchers will look to share their insights with the wider research community (and other interested users) to foster scholarly debate and innovation.
- 4.10 Academic publishers support researchers validate their results, present them effectively, and disseminate findings among interested readers. Publication in a respected, ranked, British or international journal (or in collaboration with a highly regarded publisher) sends a signal about research quality and offers a form of certification, which generates recognition for scholars. This is particularly important for early-career researchers who are looking to establish themselves in a specific field where career progression will most likely depend on the quality and quantity of published output.<sup>51</sup>
- 4.11 Publication is also a way of registering the author's ownership of the underlying ideas and offers protections against misrepresentation, plagiarism, and commercialisation.

## Higher education institutions

- 4.12 HEIs such as universities, colleges and academic research centres have a dual role to educate and to further knowledge. They are involved in fostering collaborations between researchers, providing funding and resources, and operating most of the libraries that acquire and offer access to scholarly content. Some universities also operate specialised academic publishing businesses known as university presses.<sup>52</sup>

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<sup>50</sup> In 2014, 58% of all UK researchers were affiliated HEIs while 38% were employed by private businesses. Source: Elsevier (2017) *International Comparative Performance of the UK Research Base* (available [here](#)), page 37.

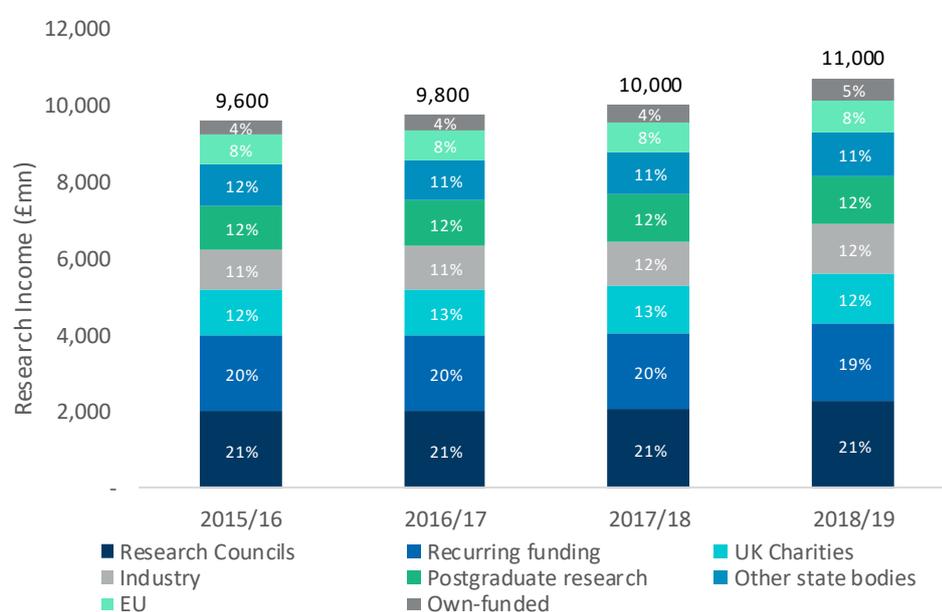
<sup>51</sup> See, for example, Mason, S. Merga, M. Morris, J (2018) *Tips for negotiating the peer-reviewed journal publication process as an early-career researcher* (available [here](#)).

<sup>52</sup> See ¶4.40 onwards.

## Funding bodies

- 4.13 Scholarly research in the UK is typically funded by a range of specialised funding bodies, including public agencies, universities, charities, learned societies and commercial entities. Estimates reported by the UK Office for Students suggest that HEIs in the UK received nearly GBP 11 billion in research funding in FY2018/19.<sup>53</sup>
- 4.14 The main source of funding for UK universities is the UK Government, although charitable organisations such as the Wellcome Trust<sup>54</sup> also represent a significant source of funding for certain disciplines, as set out in Figure 4-3.

**Figure 4-3: UK HEI research income (GBP millions)**



Source: FTI analysis of data provided by the Office for Students.

- 4.15 Public funding in the UK is distributed through agencies such as UKRI. UKRI allocates research funding through two main streams:
- (1) **Recurrent funding** distributed by Research England; and
  - (2) **Grant funding** distributed primarily by the disciplinary Research Councils.
- 4.16 We discuss each type of funding briefly in turn below.

<sup>53</sup> Office for Students (2020) *Annual TRAC 2018-19* (available [here](#)), Table 5.

<sup>54</sup> See: <https://wellcome.org/>

### *Recurrent funding*

- 4.17 Research England distributes recurrent funding to HEIs in the form of annual block grants. Most of this is Quality Related (“QR”) research funding, which is distributed among HEIs based on their historical performance against a set of criteria set out in the Research Excellence Framework (“REF”).
- 4.18 The REF functions as a review of UK HEI research quality and is undertaken by the Research Councils of England, Scotland, Wales and Northern Ireland. It aims to:<sup>55</sup>
- (1) provide accountability and evidence for public investment in research;
  - (2) provide benchmarking information and establish reputational yardsticks; and
  - (3) inform the selective allocation of research funding.
- 4.19 During the REF process, HEIs submit research publications across four main subject areas for assessment by expert panels,<sup>56</sup> with each subject area broken into further subcategories. The evaluation of research is primarily based on expert judgement, although some categories will consider metrics such as citations in well-regarded journals to assess the significance of research outputs.<sup>57</sup>
- 4.20 The last REF was completed in 2014 and is known as ‘REF2014’. ‘REF2021’ is currently underway. The date of the next REF is yet to be determined and it is therefore referred to as the ‘REF-after-REF2021’.
- 4.21 In FY2019/20, Research England distributed GBP 2.2 billion in recurrent funding among HEIs in the UK. Of this, GBP 1.6 billion (or 76%) was QR funding, allocated based on HEIs’ performance against REF2014.<sup>58</sup> HEIs can generally spend recurrent funding in line with their main priorities.

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<sup>55</sup> REF, *What is the REF?* webpage (available [here](#)). Accessed 22.12.2020.

<sup>56</sup> The four main areas are: Medicine, health and life sciences; Physical sciences, engineering and mathematics; Social sciences; and Arts and humanities.

<sup>57</sup> REF (2020) *Guidance on submissions* (available [here](#)), ¶1288.

<sup>58</sup> Research England (2019) *Research and knowledge exchange funding for 2019-20* (available [here](#)), Table A.

### *Grant funding*

- 4.22 The disciplinary Research Councils within UKRI award grant funding to specific research projects based on a forward-looking assessment of research proposals.
- 4.23 In FY2019/20, UKRI awarded over GBP 2 billion in grant funding in the form of 4,500 individual grants.<sup>59</sup> The average grant was worth approximately GBP 470,000, although the value of individual grants varied significantly (from less than GBP 1,000 to over GBP 44 million).
- 4.24 Disciplines that fall into the Science, Technology and Medicine (“**STM**”) category have historically received significantly more grant funding than disciplines falling into the Arts, Humanities and Social Sciences (“**AHSS**”) category.<sup>60</sup> As a result, AHSS disciplines tend to be more reliant on recurrent funding from Research England than STM disciplines.

### **Academic publishers**

- 4.25 Academic publishers represent a diverse industry of private and independent-sector organisations that support researchers to validate results, present them effectively, and disseminate findings among interested readers.
- 4.26 Publishers play a critical role in ensuring the quality and integrity of research.
- 4.27 In particular, academic publishers manage the peer review of research publications. Through this process, an author’s original submission is critiqued by other experts in the same field and subsequently revised and improved.<sup>61</sup>
- 4.28 Peer review is at the core of how publishers help control and increase the quality, integrity and accuracy of research, building a reliable canon of information that subsequent researchers can trust. Only submissions that pass the peer-review process and satisfy editorial standards are accepted for publication.

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<sup>59</sup> UKRI (2020), *Competitive funding decisions 2019-20* (available [here](#)) (excluding grants for fellowships).

<sup>60</sup> For example, in FY2019/20, EPSRC and MRC awarded GBP 600 million and GBP 310 million in research grants, respectively. In comparison, AHRC only awarded GBP 90 million in research grants in the same year. Source: FTI analysis of data published by UKRI. See UKRI (2020), *Competitive funding decisions 2019-20* (available [here](#)).

<sup>61</sup> Peer review is typically provided by scholars who are experts in their respective fields. It is usually not remunerated but offers recognition that is particularly important for established researchers and the opportunity to keep up-to-date with latest developments in the field. See: Publons (2018) *Global state of peer review 2018* (available [here](#)), pages 4 and 12.

- 4.29 In the case of journal articles, an author’s original submission is generally referred to as the Pre-Print (“**PP**”). The accepted submission is known as the Accepted Manuscript (“**AM**”) while the final published text is known as the version or record (“**VOR**”).
- 4.30 Beyond peer review, publishers fulfil a number of other roles that are vital to ensure the integrity of academic research. Publishers perform ethics and plagiarism checks, establish author ownership of ideas, and work with the research community to set standards and guidelines for academic enquiry.<sup>62</sup>
- 4.31 Publishers also play a substantial role in improving the quality and discoverability of research outputs through copy and art editing, indexing, adding enriched metadata, search engine optimisation and operating online platforms. Following publication, publishers continue to play a role in the preservation of the scientific record and by issuing corrections and providing metrics to help authors and readers understand the impact of each publication.
- 4.32 Academic publishers vary significantly in terms of their scale and focus. In 2014 there were almost 200 academic publishers operating in the UK.<sup>63</sup> These include:
- (1) commercial publishers with global operations;
  - (2) learned societies with specific focus areas;
  - (3) university presses associated with specific HEIs; and
  - (4) other independent sector organisations.
- 4.33 We discuss each category of publisher in further detail below.
- Commercial publishers*
- 4.34 Commercial publishers are responsible for the lion’s share of journals and research articles that are published around the world. They therefore account for a significant portion of the academic publishing market. In the UK, the three largest commercial publishers accounted for approximately 60% of HEI journal expenditure in 2016.<sup>64</sup>

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<sup>62</sup> Frontier Economics (2018) *Publishing’s contribution to research and innovation* (available [here](#)), pages 14 to 18. See also this infographic developed by Springer Nature (available [here](#)) and a position article from Taylor & Francis (available [here](#)).

<sup>63</sup> Frontier Economics (2017), *The contribution of the publishing industry to the UK Economy* (available [here](#)), page 27.

<sup>64</sup> UUK (2017) *Monitoring the transition to open access* (available [here](#)), page 43.

- 4.35 Commercial publishers may also offer additional services beyond academic publishing. For example, Elsevier maintains a widely-cited database of abstracts and citations known as Scopus. This has been a key source of information for multiple studies on the R&D sector and scholarly communications industry.<sup>65</sup>

#### *Learned societies*

- 4.36 Learned societies are typically mission-driven and non-profit membership organisations that aim to promote and further a specific academic speciality while supporting their members. Their activities range from providing funding for research to publishing journals, accrediting and connecting members, facilitating training, investing in education and organising conferences. Estimates suggest that there are over 5,000 learned societies around the world and around 300 in the UK.<sup>66, 67</sup>
- 4.37 Learned societies tend to publish journals that are focused on a specific discipline. Their operations are typically smaller than those of their commercial counterparts. However, many support the dissemination of highly specialised research within their own fields and contribute to scholarly debate in niche subjects in a way that commercial publishers do not. Learned societies play a key role in setting standards, driving consensus, and advancing the development of research in their fields.
- 4.38 The UK benefits from a particularly rich and diverse learned sector that is instrumental in producing high-quality and globally-regarded research. Institute of Physics Publishing (“**IOP**”) is the largest learned society publisher in the UK. In 2019, IOP published approximately 30,000 peer-reviewed research articles across more than 90 journals. Around half of these were in collaboration with other learned societies.<sup>68</sup>
- 4.39 Learned societies often use revenues earned from academic publishing to support other non-commercial activities (such as conferences, training and research). Figure 4-4 illustrates the extent to which many learned societies rely on their publishing income to support other activities.

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<sup>65</sup> Examples include: BEIS (2019) *International comparison of the UK research base* (available [here](#)); UUK (2017) *Monitoring the transition to open access* (available [here](#)); and Tickell (2018) *Open access to research publications* (available [here](#)).

<sup>66</sup> See: <https://www.worldoflearning.com/>

<sup>67</sup> Johnson, R. Fosci, M. (2015) *On shifting sands: assessing the financial sustainability of UK learned societies* (available [here](#)), page 2.

<sup>68</sup> See: <https://iopublishing.org/publications/our-journals/>

**Figure 4-4: Learned societies by size, publishing revenue and margin (2016)**

Source: UUK (2017) *Monitoring the transition to open access*, page 47.

### University presses

- 4.40 The oldest form of academic publisher is the University Press, which first originated in 1534 at Cambridge University, followed by Oxford University some 50 years later.<sup>69</sup> As with learned society publishers, any profits from publishing are typically reinvested back into the university to fund its other activities.
- 4.41 While Cambridge University Press (“CUP”) and Oxford University Press (“OUP”) are the preeminent university presses within the UK publishing industry, publishing more than 800 journals combined,<sup>70</sup> in recent years there has been a significant increase in the number of universities setting up their own presses.
- 4.42 These newer university presses, examples of which include UCL Press and the University of Huddersfield, are typically OA, digital and library based, and tend to offer a smaller range of services than other publishers. Often, they draw upon existing university staff and resources, with some further financial support provided by their institution.<sup>71</sup>

<sup>69</sup> Jisc (2017) *Changing publishing ecologies* (available [here](#)), page 6.

<sup>70</sup> CUP, *Publish with Cambridge* (available [here](#)). Accessed 30.11.2020; and OUP, *Annual Report 2019-2020* (available [here](#)). Accessed 30.11.2020.

<sup>71</sup> Jisc (2017) *Changing publishing ecologies* (available [here](#)), pages 3 and 18.

- 4.43 University presses are also more likely to be known for publishing monographs than other publishing entities.

*Other non-profit non-society publishers*

- 4.44 Some publishers who are not associated with an HEI or learned society may choose to operate on a non-profit basis, producing journals and monographs at cost. Typically, content is offered on an OA basis. Examples of such publishers include PLOS PeerJ and Open Book Publishers.

**University libraries**

- 4.45 University libraries help readers access peer-reviewed scholarly publications by acquiring and organising content. They also have a role in archiving and preserving records, while librarians provide a key service in assisting readers uncover articles of interest.<sup>72</sup>
- 4.46 University libraries will typically purchase a licence from academic publishers to access scholarly journals. Small libraries or specialised institutes may purchase individual subscriptions to specific journals. However, large libraries will negotiate what are known as ‘big deals’ to access entire bundles of journals, including print copies for a minority of content and online access to a broader collection.
- 4.47 Historically, university libraries employed subscription agents to reduce the administrative burden of purchasing content from different publishers. More recently, university libraries have come together to form consortia to improve their bargaining power in negotiations with publishers, with the aim of agreeing lower fees and reducing the administrative burden of subscribing to an ever growing body of scholarly content. In the UK, the Joint Information Systems Committee (“Jisc”) provides digital solutions to the higher education sector and negotiates agreements with academic publishers on behalf of UK universities.<sup>73, 74</sup>

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<sup>72</sup> Public libraries may also help readers access certain research publications, for example through the Access to Research (“A2R”) programme. However, university libraries are generally much more utilised.

<sup>73</sup> Jisc is a not-for-profit company that provides HEIs in the UK with digital services and solutions (including procurement advice).

<sup>74</sup> Jisc, *Our role in open access* webpage (available [here](#)). Accessed 22.12.2020.

4.48 In relation to monographs and edited collections, librarians are typically responsible for selecting which publications a library will purchase, often consulting researchers and academics to help allocate resources most efficiently. Historically, third-party aggregators facilitated access to monographs, but the rise of online booksellers such as Amazon has simplified and enhanced libraries' access.<sup>75</sup> Interlibrary loans are also used to extend readers' access beyond their own library's catalogue of publications.

### Readers

4.49 The most frequent readers of research articles and academic books are researchers themselves, who look to learn from and build on scholarly content for their own research.

4.50 Beyond this core readership, there is a broad pool of potential consumers of research including:

- students, who may read journal articles as part of their studies or for their own interest;
- entrepreneurs, businesses and non-governmental organisations (“NGOs”), who may look to build upon or commercialise the findings of research;
- civil servants and governmental research agencies, who may use the findings of research to support policy design; and
- the general public, who may read articles for their own interest or for other, non-commercial reasons.

4.51 Typically, these readers do not produce scholarly content of their own. Indeed, they may be more satisfied with access to the AM version of a research article than scholars. However, such readers nevertheless make a significant contribution to publishing research through their subscriptions.

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<sup>75</sup> Belvadi, M. (2016) *DDA and traditional monograph acquisition – the experience of a small university library* (available [here](#)).

## 5. Summary of the main academic publishing models

### Introduction

- 5.1 In this Section, we discuss the different types of publishing models that are used in UK academic publishing today.
- 5.2 We first discuss the traditional ‘**reader pays**’ model (where readers pay fees to access scholarly content) and the more recent ‘**author pays**’ model (where authors, their institutions or their funders pay to publish research outputs). The latter model has evolved in response to greater calls for OA and often underpins the ‘**Gold**’ route to OA, where a VOR is made available to readers immediately upon publication. We also consider hybrid variants of these two models.
- 5.3 We then discuss agreements that have been put in place to ensure that the ongoing transition to OA does not place an undue burden on research intensive institutions (known as ‘transformative agreements’).
- 5.4 Finally, we discuss the current approach for making research available on an OA basis in situations where there is no funding to cover the cost of publication. This is generally done by publishing scholarly content using the ‘reader pays’ model but allowing authors to post the peer-reviewed AM in institutional or subject-matter repositories after the expiry of an initial embargo period. This ‘reader pays’ model with deposit is known as the ‘**Green**’ route to OA.

### ‘Reader pays’

- 5.5 Historically, readers paid to read the published outputs of academic research. University libraries and many other organisations – including research institutes, governmental research agencies, R&D-driven corporations and NGOs – maintained subscriptions to a wide range of scholarly journals on behalf of their readers and offered access to academic content. Libraries were also responsible for purchasing academic books and arranging inter-library loans for highly specialised works.<sup>76</sup>

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<sup>76</sup> Individuals who were not affiliated with an HEI (or similar organisation) could access content by paying a one-off pay-per-view fee (typically in the range of GBP 20-50).

### ‘Author pays’

- 5.6 More recently, there has been a shift in the academic publishing market towards a model where researchers, their institutions, or their funders pay to publish their research. This has been driven by a desire to provide more OA to the published outputs of academic research.<sup>77</sup>
- 5.7 Under the ‘author pays’ model, researchers, their institutions, or their funders pay a fee known as the article publication charge (“**APC**”) to cover the cost of publishing research articles in scholarly journals. In return, publishers provide immediate and full public access to the final text of the article (the VOR) on their online publishing platform with a licence that allows extensive re-use.
- 5.8 The ‘author pays’ model is less common in the case of academic books such as monographs. Nevertheless, in some cases, researchers still pay a fee – known as a book publication charge (“**BPC**”) – to publish monographs and other long-form research. In some cases, the ‘author pays’ approach has been associated with vanity publishing and authors may prefer to publish long-form works using more traditional publishing models, which are sometimes associated with more robust quality assurance and certification.<sup>78</sup>
- 5.9 The ‘author pays’ model often underpins the ‘**Gold**’ route to OA, where a VOR is made available to readers immediately upon publication. It is also sometimes also referred to as ‘APC-based publishing’ in respect of scholarly journals or ‘BPC-based publishing’ in respect of academic books.

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<sup>77</sup> For example, the UK Select Committee on Science and Technology recommended in 2004 that the UK Research Councils should establish a fund that researchers could use to pay to publish their research (report available [here](#)). Major funding bodies including the Research Councils and the Wellcome Trust began to attach open access conditions to their research grants from the mid-2000s onwards.

In 2012, a formal review by Professor Dame Janet Finch (the “**Finch Review**”) considered alternative routes for expanding OA to the published findings of research. It recommended ‘author pays’ as one route for pursuing full OA in relation to research articles published in scholarly journals. See: Working Group on Expanding Access to Published Research Findings (2012) *Accessibility, sustainability, excellence: how to expand access to research publications* (available [here](#)).

<sup>78</sup> See, for example, a 2018 position paper by the British Academy titled: *Open access and monographs: Where are we now?* (available [here](#)), page 3.

- 5.10 The transition towards greater OA is still ongoing. At present, both publishing models ('reader pays' and 'author pays') are used in academic publishing in the UK, meaning that publishers are responding to the needs of two different customer groups at the same time. This includes:
- (1) the users of scholarly publications, who pay to read; and
  - (2) researchers, their institutions and their funders, who pay to publish.

### Hybrid models

- 5.11 To support greater OA publishing through the 'Gold' route, publishers have transitioned certain scholarly journals from a subscription-based publishing model to an APC-based model and set up new journals that are funded primarily through APCs. These journals are referred to as '**Fully OA**' journals. Fully OA journals publish all research articles via the immediate gold OA route, and there is no alternative subscription publication route for this content. Publishers are working to establish the new brands of these Fully OA journals in the market.
- 5.12 However, many research articles published through the 'Gold' route are still published in subscription-based journals that allow authors to pay APCs to make selected content available on an OA basis. Such journals are referred to as '**hybrid**' journals and have played an important part in the transition to greater OA via the 'Gold' route. Hybrid journals are often established and well-regarded titles that are responding to OA within their existing business models.
- 5.13 In the case of academic books, researchers may sometimes pay an upfront fee known as the chapter publication charge ("**CPC**") to publish a specific chapter in an academic book on an OA basis. However, readers wishing to access the full work still need to buy the full text. This is generally referred to as the 'hybrid model' for publishing academic books.

### Growth in 'Gold OA'

- 5.14 In 2016, 30% of research articles published by UK authors were made available through the 'Gold' route (up from 12% in 2012). Of these, approximately half were published in 'Fully OA' journals while the remaining half were published in hybrid journals, enabled in large part by transformative agreements.<sup>79</sup> The remaining 70% of research articles published by UK authors were published on a subscription basis.<sup>80</sup>
- 5.15 More recent data on a subset of 58 research intensive universities in the UK suggests that the share of research articles published by UK authors has continued to increase since 2016, although perhaps at a slower rate than previously.<sup>81</sup>
- 5.16 A similar (if slower) pattern of growth in 'Gold' OA can be observed internationally, as illustrated in Figure 5-1 below. In 2018, around 20% of all research articles in the world were published via the 'Gold' route using an APC-based publishing model.<sup>82</sup> Of these, approximately 85% were published in Fully OA journals, with the remaining 15% published in hybrid journals.<sup>83</sup> The remaining 80% of articles were published on a subscription basis.

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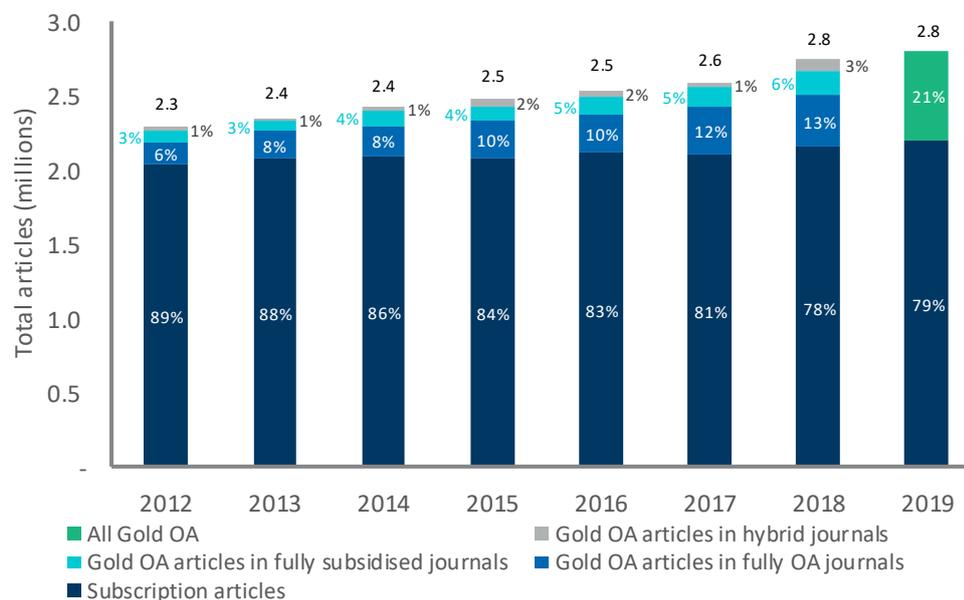
<sup>79</sup> See ¶¶5.18-5.21 below. Transformative agreements generally combine access to subscription-based content with the ability for an institution to publish its research on an OA basis.

<sup>80</sup> UUK (2017) *Monitoring the transition to open access* (available [here](#)), page 23.

<sup>81</sup> Data published by the CWTS Leiden Ranking of universities (available [here](#)) indicates that in the four year period from 2015 to 2018 the share of academic journal articles published via the Gold route by 58 research intensive universities in the UK was approximately 38%.

<sup>82</sup> Elsevier, *Supporting open access* webpage (available [here](#)). Accessed 20.12.2020.

<sup>83</sup> FTI analysis of Elsevier, *Supporting open access* webpage (available [here](#)). Accessed 20.12.2020.

**Figure 5-1: Worldwide research articles by publishing model (millions)**

*Note: Fully subsidised journals are OA journals that do not charge authors APCs.*  
*Source: FTI analysis of data reported on the Elsevier website.<sup>84</sup>*

- 5.17 As of 2019, a small share of academic books (approximately 5%) was published via the ‘Gold’ route using a BPC-based publishing model.<sup>85</sup> The remaining academic books were published to be sold to libraries or other specialised buyers.

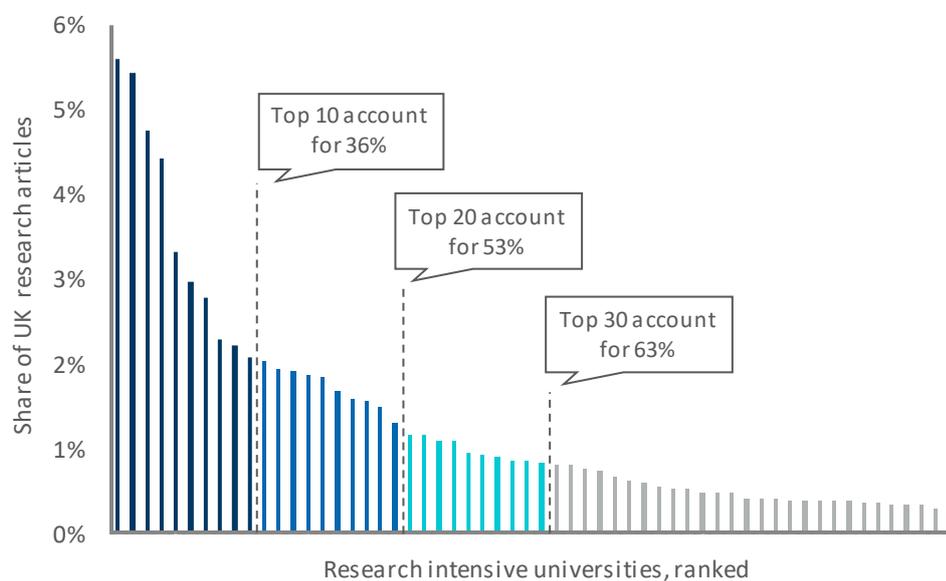
### Transformative agreements

- 5.18 The ongoing transition towards greater OA and the increasing use of the ‘author pays’ model is slowly shifting the responsibility for paying for publishing away from a broad pool of readers and on to a relatively small number of research intensive institutions. This is particularly true in the UK, where the top 10 most research intensive institutions account for approximately one third of the UK’s research output, as illustrated in Figure 5-2 below.<sup>86</sup>

<sup>84</sup> Elsevier, *Supporting open access* webpage (available [here](#)). Accessed 22.12.2020.

<sup>85</sup> Information provided by publishers of academic books suggests that, as of 2019, 5% of monographs were published on an open access basis.

<sup>86</sup> FTI analysis based on the CWTS Leiden Ranking (available [here](#)) on the volume, scientific impact, open access publishing, collaboration and gender diversity of academic publications by university.

**Figure 5-2: Research articles by UK university (annual average, 2015-2018)**

Source: FTI Consulting analysis based on the CWTS Leiden Ranking of the number of academic journal articles by university (excluding conference proceedings).

- 5.19 While the transition to greater OA is still ongoing, research intensive institutions must also continue to subscribe to content that has been published on a subscription-basis at home and abroad. This effect is sometimes referred to as the ‘first mover disadvantage’. It is particularly acute in the case of research intensive institutions in the UK, who are leading the global transition to OA with a high proportion of OA publications, while also continuing to subscribe to non-OA content.
- 5.20 In the UK, Jisc has negotiated transitional deals with academic publishers – known as ‘transformative agreements’ – to help manage down the cost of the transition to greater OA for UK universities.<sup>87</sup> Transformative agreements generally combine access to subscription-based content with the ability for an institution to publish through the ‘Gold’ route. The costs of OA publishing are therefore to a large extent absorbed within existing subscription fees as a result of transformative agreements.<sup>88</sup>

<sup>87</sup> Jisc, *Our role in open access* webpage (available [here](#)). Accessed 22.12.2020.

<sup>88</sup> See, for example: Hinchliffe, L. (2019) *Transformative Agreements: A Primer*. The Scholarly Kitchen. (available [here](#)).

- 5.21 Transformative agreements have allowed UK universities to publish through the ‘Gold’ route for several years without incurring significant additional costs associated with OA publishing. They have also supported growth in the share of research articles that are freely available online upon publication for readers to use. However, they have also masked the full cost of OA publishing and are not an accurate reflection of the ‘true’ cost of OA in the event that the entire academic publishing model was to shift to OA.<sup>89</sup>

#### ‘Green’ route to open access

- 5.22 UKRI provides block grants to help UK universities cover the costs of OA publishing. Grants are awarded to institutions that receive a substantial amount of funding through the disciplinary Research Councils and are intended to support the payment of APCs.
- 5.23 In FY2020/21, UKRI provided GBP 23 million in block grants to support OA publishing.<sup>90</sup> This compared to GBP 2 billion in research funding through the disciplinary Research Councils.<sup>91</sup>
- 5.24 The available funding is not sufficient to cover the cost of OA publishing for all research projects that receive grant funding through the Research Councils. By way of example, we estimate that the OA funding provided by UKRI would have been sufficient to cover the cost of APCs for approximately 11,500 research articles in FY2020/21.<sup>92</sup> Meanwhile, researchers affiliated with UK universities produced approximately 188,000 research articles in 2019.<sup>93</sup>

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<sup>89</sup> Indeed, we understand that such a shift would likely render transformative agreements unsustainable as a model for academic publishing.

<sup>90</sup> UKRI (2020) *2020-21 block grant awards* (available [here](#)).

<sup>91</sup> See ¶4.23 above.

<sup>92</sup> Assuming an average APC of GBP 2,000, OA grants would cover the cost of publishing approximately 11,500 articles (GBP 23,000,000 / GBP 2,000 = 11,500). We note that APCs can vary materially between journals and reflect a range of factors including excellence in research, strength of editorial and review, and other market conditions.

<sup>93</sup> See SCImago Journal and Country Rank portal (available [here](#)).

- 5.25 The outputs of research projects that do not receive sufficient funding to cover the cost of OA publishing (whether through publishing grants, research grants or other *ad hoc* funding sources) tend to be published using the ‘reader pays’ model instead.<sup>94</sup> This way, the responsibility for funding publishing is transferred back to readers, and publishers can recover the cost of their investment through journal subscriptions and book sales.<sup>95</sup>
- 5.26 However, research funding bodies may still require that research articles that acknowledge grant funding are posted in institutional or subject-matter repositories to allow users to access research outcomes. The version that is posted is usually the peer-reviewed AM rather than the final VOR. Many funding bodies allow articles to be posted after the expiry of an initial embargo period, following the publication of the VOR in a subscription journal.
- 5.27 For example, the existing RCUK Policy for research articles requires authors to post their AM in a repository within a defined period. The policy permits embargo periods of up to 6 months in STM disciplines and up to 12 months in AHSS disciplines as “*the impact of its policy on different disciplinary areas is likely to be varied*”.<sup>96</sup> In certain cases, embargo periods may be longer.<sup>97</sup>

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<sup>94</sup> We also understand that, in some cases – and particularly in the case of authors from Low and Middle Income Countries (“**LMICs**”) – publishers may waive any OA publication charges.

<sup>95</sup> This is recognised by the existing open access policy maintained by RCUK. See: RCUK (2013) *Policy on Open Access and Supporting Guidance* (available [here](#)), Section 3.6 (i).

<sup>96</sup> RCUK (2013) *Policy on Open Access and Supporting Guidance* (available [here](#)), pages 1-2.

<sup>97</sup> See ¶6.4 below.

- 5.28 This 'reader pays' model with deposit is known as the '**Green**' route to OA. It is used in the absence of dedicated funding that would cover the cost of OA publishing. It also gives readers the ability to access research outputs in situations where funding constraints may be preventing university libraries (or other institutions) from subscribing to the full canon of published research, albeit with a delay.
- 5.29 The '**Green**' route to OA is compatible with the 'reader pays' publishing model only because peer-reviewed articles are posted in online repositories with a delay and the version that is posted is not the VOR. This allows academic publishers to continue to charge customers fees for what is, in relative terms, a premium service: one that is characterised by immediate and easy access to the final version of curated content and with a licence that facilitates re-use, while also protecting the rights of creators and the integrity of content. Ultimately, this allows publishers to recover the investment made in developing manuscripts and publishing VOR articles.
- 5.30 Any significant change in the relative attractiveness of the free and paid-for services would affect the sustainability of academic publishing. This is because readers and libraries would not be willing to pay subscription fees for a premium service that could not be differentiated from freely available content that was 'good enough'.
- 5.31 Similarly, researchers and their institutions would only be willing to pay APCs in exchange for a premium publishing service that allows for immediate dissemination, easy discovery and extensive re-use, while also protecting the rights of the creators and the integrity of content. Just like readers, researchers would not be willing to pay fees for a service if an equally attractive free service was also available. Indeed, researchers would be inclined to rely on the free service and stop paying APCs instead.

## 6. Summary of UKRI's new open access policy

### Introduction

- 6.1 In this Section, we provide a brief summary of the existing OA policy maintained by RCUK. We then discuss the new UKRI policy proposals in respect of: (1) research articles; and (2) long-form research publications.

### The current open access policy

- 6.2 The UK's Research Councils have maintained OA policies since 2005. The current policy has been in place since 2013 and applies to peer-reviewed research articles published in journals or conference proceedings that acknowledge Research Council funding.<sup>98</sup>
- 6.3 Researchers in receipt of Research Council funding are expected to publish in journals that are compliant with the RCUK Policy. The RCUK policy supports both 'Gold' and 'Green' routes to OA, but the 'Gold' route (with immediate OA and maximum opportunity for reuse) is preferred.<sup>99</sup>
- 6.4 Under the 'Green' route, a journal should consent to the author posting the AM in any repository without restriction on non-commercial re-use and within a defined period. Embargo periods of varying lengths (6 months in STM disciplines and 12 months in AHSS disciplines) are permitted as "*the impact of its policy on different disciplinary areas is likely to be varied*". Where funding for APCs is unavailable to an author during the transition to full OA, longer embargo periods are permitted (12 months in STM disciplines and 24 months in AHSS disciplines).<sup>100</sup>

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<sup>98</sup> RCUK (2013) *Policy on Open Access and Supporting Guidance* (available [here](#)), pages 1-2.

<sup>99</sup> RCUK (2013) *Policy on Open Access and Supporting Guidance* (available [here](#)), page 1 and Section 3.6 (v).

<sup>100</sup> RCUK (2013) *Policy on Open Access and Supporting Guidance* (available [here](#)), pages 1-2 and Section 3.6 (i)–(iii).

- 6.5 The choice of repository is normally at the discretion of the author and their research organisation, although some Research Councils require papers to be posted in specific repositories.<sup>101</sup>
- 6.6 Funding for OA publishing is available through block grants awarded directly to research organisations and publication charges relating to peer-reviewed research papers are not covered by grant applications. Research organisations in receipt of block grants are expected to establish institutional publication funds to manage the funds available for OA charges and other publication costs in a way that allocates funds fairly across disciplines and across researchers across different stages of their careers.<sup>102</sup>

### The new UKRI open access policy

- 6.7 In 2018, UKRI launched a review of the existing OA policy framework. The purpose was to develop a single policy that would apply to peer-reviewed research articles and other long-form research publications that acknowledge funding from UKRI and its constituent councils; and to support a faster transition to OA.<sup>103</sup>
- 6.8 UKRI consulted on its new OA policy in early 2020. The Open Access Review Consultation proposed that the new UKRI policy would apply to all publications arising from research that is either partially or fully funded by UKRI and its constituent councils. However, UKRI also proposed certain exemptions for block grant funding from Research England to higher education providers in England.<sup>104</sup>
- 6.9 In particular, the UKRI Policy would apply to:<sup>105</sup>
- (1) **peer-reviewed research articles** (including reviews and conference papers) that are accepted for final publication in journals, in conference proceedings and on OA publishing platforms; and also
  - (2) **long-form research publications** (including monographs, book chapters and edited collections – although UKRI is still considering the exact definition).

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<sup>101</sup> RCUK (2013) *Policy on Open Access and Supporting Guidance* (available [here](#)), Section 3.8, paragraph (i).

<sup>102</sup> RCUK (2013) *Policy on Open Access and Supporting Guidance* (available [here](#)), pages 1-3 and Section 3.4.

<sup>103</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶12.

<sup>104</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶127 and FN12.

<sup>105</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶127 and pages 10-11 (summary box).

- 6.10 Compliance with the UKRI Policy would also result in compliance with the OA Policy for the next REF (known as 'REF-after-REF 2021') and thereby set a wider precedent for the UK scholarly communications sector.<sup>106</sup>
- 6.11 We set out UKRI's proposals for articles and long-form publications in turn below.
- Research articles*
- 6.12 In respect of peer-reviewed research articles, UKRI proposed that:<sup>107</sup>
- (1) articles must be accessible immediately upon publication either via the 'Gold' route or the 'Green' route with zero embargo ("**Green with zero**"); and
  - (2) articles must be available with a Creative Commons attribution ("**CC BY**") licence that allows users to distribute, copy, adapt and build upon material presented in a publication for any purpose, provided that appropriate credit was given to the original author and any changes were clearly indicated. UKRI is considering allowing a more restrictive Creative Commons attribution no-derivatives ("**CC BY ND**") licence (which does not allow material to be adapted and built on) on a case-by-case basis.
- 6.13 UKRI is also considering:
- (1) not permitting UKRI OA funds to be used for publication in hybrid journals or platforms, unless these are part of a transformative agreement or a similar arrangement;
  - (2) requiring the author or their institution to retain the copyright of their publication or certain reuse rights; and
  - (3) requiring journals, platforms and repositories to meet certain access and discovery standards.
- 6.14 The new UKRI policy would apply to research articles accepted for publication on or after 1 January 2022.<sup>108</sup>

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<sup>106</sup> UKRI, *Open access research* website (available [here](#)). Accessed 01.02.2021.

<sup>107</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), page 10 (summary box).

<sup>108</sup> Unless a contract had been signed before this date that prevents adherence to this policy.

*Long-form research publications*

- 6.15 In respect of monographs, book chapters and edited collections, UKRI proposed that:<sup>109</sup>
- (1) the final version of record or post-peer reviewed AM must be free to view and download via an online publication platform or institutional or subject repository within a maximum of 12 months of publication; and
  - (2) the OA version should be published under a licence that maximises reuse and is appropriate to the content of the work. A CC BY licence is preferred but a CC BY ND licence would be permissible where necessary.
- 6.16 UKRI is also considering:
- (1) the definition of in-scope monographs, book chapters and edited collections;
  - (2) permitting certain exceptions, for example where significant re-use of third party materials is required;
  - (3) requiring the author or their institution to retain the copyright of their publication or certain reuse rights.
- 6.17 The new UKRI policy would apply to long-form publications accepted for publication on or after 1 January 2024.<sup>110</sup>

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<sup>109</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), page 11 (summary box).

<sup>110</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), page 11 (summary box).

## 7. Economic impact of proposed restrictions for research articles

### Introduction

- 7.1 In this Section, we consider the impact of the UKRI Policy proposal to remove embargo periods associated with the ‘Green’ route to OA for peer-reviewed research articles.<sup>111</sup>
- 7.2 In particular, we explain that the UKRI Policy will affect customers’ willingness to pay for services offered by academic publishers; and that this will have considerable knock-on effects on different groups of stakeholders in the scholarly communications industry.
- 7.3 We also develop an estimate of the loss of revenue to UK journals as a result of the UKRI Policy; and consider the potential for an increase in publication-related expenditure for research intensive universities in the UK in the event that publishers transition a significant number of the most affected journals to ‘Fully OA’ in response to the UKRI Policy.

### Economic impact of proposed restrictions on embargo periods

- 7.4 As discussed in Section 5 above,<sup>112</sup> the ‘Green’ route to OA is compatible with subscription-based publishing and APC-based publishing only because peer-reviewed research articles are posted in online repositories with a delay and the version that is posted is not the final VOR.
- 7.5 Any significant changes in the relative attractiveness of the paid-for services offered by publishers and freely available alternatives would affect the sustainability of academic publishing. This is because customers would not be willing to pay for a premium service that could not be differentiated from freely available content.

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<sup>111</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), page 10 (summary box).

<sup>112</sup> See ¶¶5.22-5.31 above.

- 7.6 The new UKRI Policy means that, going forward, research articles that acknowledge UKRI funding will be made available for free via an online publishing platform or an institutional or subject-matter repository for users to view and download immediately upon publication in their final, published format (or similar) and with a licence that allows maximum re-use.<sup>113</sup> We understand that content could also be made available on a wide range of commercial platforms under the terms of the CC BY licence, which allows commercial re-use.
- 7.7 The UKRI Policy will create incentives for university libraries and other subscribers to review their subscriptions to scholarly journals and, indeed, cancel subscriptions in cases where sufficiently good versions of research articles are available online for free (particularly if existing usage levels are low). This is because the cost saving associated with not renewing subscriptions will represent a tangible financial benefit to libraries in the context of constrained budgets. At the same time, the opportunity cost to users associated with using a freely available AM or VOR under the terms proposed by the UKRI Policy will be low. Indeed, improvements in scholarly communications infrastructure are already reducing barriers to posting and discovering content and using it effectively. Some commentators have indeed argued that the distinction between the AM and VOR is also diminishing.<sup>114</sup>
- 7.8 The UKRI Policy will also affect authors', universities', and funders' willingness to pay fees for the ability to publish research articles on an OA basis. This is because the 'Green' route to OA – as proposed by UKRI – will represent a credible alternative way for disseminating content to a large number of readers without delay and free of charge. Authors, universities, and funders will therefore have few incentives to continue to pay APCs to publish.
- 7.9 As a result, the UKRI Policy will affect the ability of academic publishers to recover the cost of their investment in publishing research with considerable knock-on effects on other stakeholder groups within the research and scholarly communications industry. We discuss the impact on academic publishers, research intensive universities, the quality of published research and researchers in turn below.

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<sup>113</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), page 10 (summary box).

<sup>114</sup> Jubb, M. (2019) *Evidence to Inform a Response to the UKRI Review of Open Access Policies*. Publishers Association (available [here](#)), page 19-20.

*Effects of 'Green' OA with zero embargo on academic publishers*

- 7.10 The UKRI Policy will result in a loss of revenue for academic publishers and affect publishers' ability to recover the cost of their investment in validating research findings, publishing research articles, and disseminating content through subscription fees and OA publication charges.
- 7.11 The full extent of the loss of revenue may not be immediately observable. Price negotiations between publishers and universities take place periodically and, in the meantime, customers are likely to continue to pay for the premium service offered by journals. However, over time, customers will seek to renegotiate fees to reflect the perceived loss in relative value of the services provided by publishers (supported by new technologies that help track usage patterns).
- 7.12 The extent of the downward pressure on prices will depend on the volume of content that will ultimately be made available for free. This will, in turn, depend on the volume of content that is already subject to 'Green' OA under the terms of existing funding policies – but also on plans to increase research funding<sup>115</sup> and on behavioural changes resulting from the UKRI Policy that have the potential to increase the share of content that would be made available through the 'Green' route. For example:
- At an individual level, a zero embargo period may encourage a greater number of researchers to make articles available via the 'Green' route, as they will no longer have to wait to post them. In other words, the policy is likely to reduce the level of inertia present in the current system and increase the rate of posting relative to current levels.

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<sup>115</sup> The UK Government has an aspiration to reach 2.4% spend on R&D by 2027. This implies a greater volume of research being produced and published. See: HM Government (2020) *UK Research and Development Roadmap* (available [here](#)), page 5.



- 7.15 Instead, many journals will need to explore approaches for containing costs in line with the reduction in revenue as a result of the UKRI Policy. In some cases, the loss of revenue could fundamentally undermine the financial viability of certain journals, particularly if other funding bodies in the UK and in Europe follow the policy blueprint established by UKRI. An alternative option would be to switch towards publishing an increasing volume of content from elsewhere in the world to the detriment of the UK research base.<sup>119</sup> As such, the Policy would ultimately risk the viability of the scholarly communications ecosystem that it relies upon to provide the publishing services that enable the validation and improvement of content that results in peer-reviewed articles.
- 7.16 Cost containment would impact standards for acceptance and rejection for scholarly journals and, in turn, compromise the quality and integrity of published research. The UKRI Policy would therefore dilute the value of the research that it is looking to provide access to and, also, the benefits that could be expected from wider access to the published outputs of research.
- 7.17 A loss of revenue experienced by academic publishers would have an impact on wider economic activity. For example, it is estimated that a decrease in the final demand for publishing services of GBP 1 million would decrease economic output in the UK by approximately GBP 1.6 million.<sup>120</sup> This suggests that a loss of publishing revenue of GBP 2.0 billion in the period from 2022 to 2027 would lead to a loss of output of approximately GBP 3.2 billion over the same period on a non-discounted basis.<sup>121</sup>

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<sup>119</sup> Publishers could also explore alternative sources of income that could be used to cross-subsidise academic publishing, such as advertising. However, it is uncertain how much revenue such income streams could generate.

<sup>120</sup> Office of National Statistics (2016) *Input output tables* (available [here](#)), Output multiplier for publishing services (1.588).

<sup>121</sup> GBP 2.0 billion x 1.588 = GBP 3.2 billion.

- 7.18 The extent of the impact on economic activity would ultimately depend on the way in which commercial publishers, learned societies and university presses respond to the loss of revenue and the eventual impact on: (1) the gross profit margin, (2) the value of supply chain purchases and (3) the total number of salaried employees. Nevertheless, it is estimated that the publishing sector creates additional value to the UK economy at a rate of approximately 1.6 times its earnings (profits).<sup>122</sup> Publishing generates additional employment at a comparable rate.

*Effects of 'Green' OA with zero embargo on research intensive universities*

- 7.19 A transition by academic publishers from a subscription-based publishing model to an APC-based publishing model would have significant financial implications for research intensive universities in the UK, who are leading the transition to open access with a high proportion of OA publications while still continuing to subscribe to non-OA content.<sup>123</sup>
- 7.20 At present, it is unclear whether research organisations would be able to afford a material increase in publishing costs. The University of Oxford received one of the highest allocations of UKRI funding to support OA publishing in FY2020/21. Yet its 2019 policy on allocating funding to support OA publishing explained that “[the block grant] *will not be sufficient to cover all requests for APCs [...] if requests by Oxford researchers continue at the current trend*”.<sup>124</sup>
- 7.21 Research intensive universities would likely need additional support to manage the increasing cost of publication. At the same time, teaching intensive institutions would still need to pay subscription fees in respect of the back catalogue and non-OA content in the UK and abroad. These costs may not be transitional and could extend some time into the future, depending on the pace of adoption for OA around the world.

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<sup>122</sup> Office of National Statistics (2016) *Input output tables* (available [here](#)), GVA multiplier for publishing services (1.582).

<sup>123</sup> See ¶¶5.18-5.19 above and ¶7.73 onwards below.

<sup>124</sup> University of Oxford (2019) *RCUK Open Access block grant allocation policy* (available [here](#)).

- 7.22 Researchers may also be impacted, depending on what additional funding is made available. If no additional funding is made available and funders reallocate or 'top slice' existing research funding to cover publication costs, some proportion of research projects would not be funded. This would result in fewer projects and outputs and thus less knowledge generation, innovation, and productivity. It may also result in inactivity for some researchers and potentially fewer research posts in the UK, thus affecting the strength of the UK research sector.
- 7.23 If additional funding is made available, then researchers would not be impacted. However, the users of other public services may be affected – or, alternatively, the taxpayer would perhaps need to pay a greater contribution to support UK research and scholarship.

*Effects of 'Green' OA with zero embargo on the quality of published research*

- 7.24 Cost containment by publishers would impact standards for acceptance and rejection for scholarly journals. This could compromise the quality and integrity of published research.
- 7.25 For example, cost containment would imply less screening, checking and validating as part of the article submission process. Editorial teams would no longer be able to perform robust plagiarism checks using appropriate software or undertake checks to ensure that submissions meet certain ethical standards. There would be fewer opportunities to issue corrections or retractions. Indeed, publishers would have fewer incentives to keep improving their quality assurance processes, as they would earn limited returns on such investments.
- 7.26 Cost containment would, ultimately, increase the risk of mistakes and errors. Editors may unintentionally reject high-quality research that should have been accepted for publication – or, indeed, accept submissions that should have been developed further or rejected. Such errors would compromise the quality and integrity of the canon of published research and reduce reliability.
- 7.27 This would have considerable knock-on effects on the wider research system. Publication would no longer send a strong signal of quality or serve as a good way of certifying and registering research findings. As a result, readers and researchers would need to invest more of their own time to assess the quality and robustness of research, with an associated cost to productivity. Errors in assessing the quality of available research could also result in users relying on 'second best' content with further impacts on the quality of their own work.
- 7.28 Ultimately, the UKRI Policy could dilute the benefits that could be expected from OA to the published outputs of academic research. In particular, the Policy would dampen productivity not only within the research sector but also other industries that rely on research to maintain their global competitiveness.

*Effects of 'Green' OA with zero embargo on researchers*

- 7.29 In some cases, certain well-regarded journals with strong brands and weak links to UKRI may choose to not accept the terms of the UKRI Policy. This would exclude UK authors from publishing in well-regarded journals, with potential knock-on effects on the standing and prospects of UK researchers and institutions.
- 7.30 In particular, researchers in receipt of UKRI funding could be prevented from publishing in prestigious journals that are not Fully OA, with implications for the researchers' (and their institutions') publication and citation scores. This would impact their future employment and collaboration prospects and could discourage talented researchers from working in the UK – or even collaborating with UK based researchers. Ultimately, UK research would risk becoming less impactful and less well-regarded, with a knock-on effect on the UK's standing as a global research hub.
- 7.31 Inability to publish abroad could also imply that researchers affiliated with UK universities will be more likely to submit their articles for publication to UK journals, thereby increasing the number of articles governed by the UKRI Policy and published by UK journals. This would compound the loss of revenue for UK journals.

### Loss of subscription revenue

- 7.32 We develop an estimate of the likely loss of subscription revenue to academic publishers as a result of the UKRI Policy. We focus on the loss of revenue to journals owned by a UK-based entity publisher, society, or body (“**UK journals**”).
- 7.33 However, we note that the UKRI Policy would also affect the subscription revenues of journals owned by entities that are not based in the UK – to the extent that these journals would be willing to accommodate the proposed terms of the UKRI Policy and depending on the number of UK authors who publish in these journals. In this sense, our estimate of the loss of revenue arising as a result of the UKRI Policy is conservative.
- 7.34 In our analysis, we assume that the share of research articles that are published using the ‘Gold’ route continues to grow in line with current trends. Our analysis does not account for the possibility that the proportion of articles published through the ‘Gold’ route would be affected materially as a result of the UKRI Policy.<sup>125</sup>
- 7.35 We first consider the level of subscription revenue that UK journals would have earned in the period from 2022 to 2027 in the absence of the UKRI Policy. We do this by considering (and projecting):
- (1) the number of research articles published by UK authors in UK journals using the subscription-based model and the share that is made available through the ‘Green’ route with embargo; and
  - (2) the associated level of subscription revenue earned by UK journals.
- 7.36 We then consider the likely loss of subscription revenue to UK journals as a result of the UKRI Policy. We do this by considering:
- (1) the number of research articles published by UK authors using the subscription-based model that would become available through the ‘Green’ route with zero embargo as a result of the UKRI Policy;
  - (2) how libraries would likely respond to a reduction in the relative attractiveness of UK subscription journals associated with the ‘Green’ route with zero embargo; and
  - (3) the level of subscription revenue currently earned by UK journals associated with the ‘Green’ route with zero embargo.

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<sup>125</sup> See ¶¶7.13-7.14 above.

7.37 We note that some of these parameters are challenging to measure. Estimates that are available have often been compiled separately and for different purposes, and there is no standardised way of measuring certain variables or effects. We have therefore adopted a scenario-based approach to modelling the impact of the UKRI Policy, drawing upon the range of estimates available in the relevant literature. We consider this to be an appropriate approach given the nature of the information that is available that allows us to assess the order of magnitude of the possible impact.

*Research articles by published by UK authors*

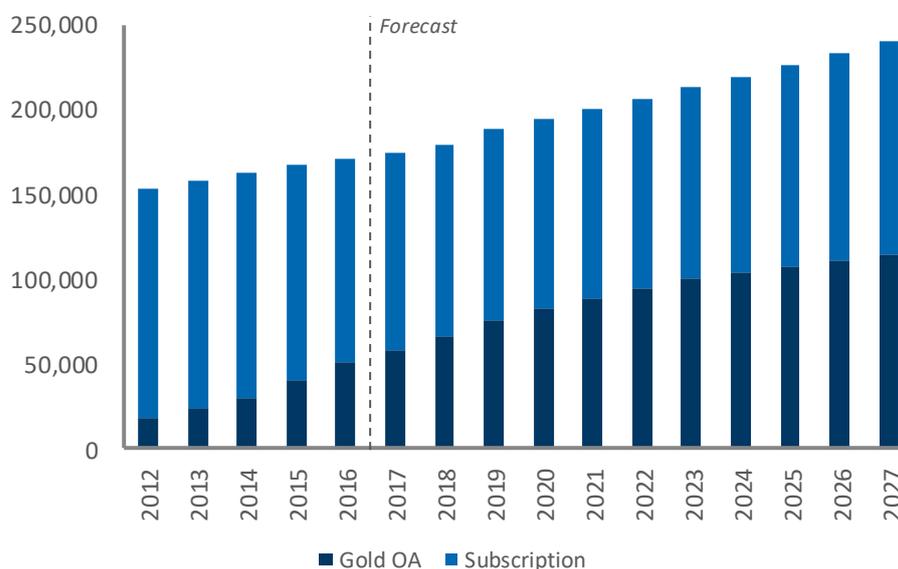
- 7.38 In 2019, UK authors published a total of around 188,000 research articles in scholarly journals around the world<sup>126</sup> (or around 7% of the world's total research output).<sup>127</sup>
- 7.39 As we explain in Section 5,<sup>128</sup> as of 2016, around 30% of research articles published by UK authors were published via the 'Gold' route, while the remaining 70% were published on a subscription basis. More recent data from a sample of 58 research intensive universities in the UK suggests that the share of research articles published via the 'Gold' route has continued to increase since 2016, but at a slower rate than before.
- 7.40 Figure 7-1 illustrates recent trends in the number of research articles published by UK authors worldwide and extrapolates these up to 2027.

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<sup>126</sup> Information retrieved from the SCImago Journal & Country Rank portal (based on the Scopus database maintained by Elsevier) indicates that researchers associated with higher education institutions in the UK authored 188,259 research articles in 2019.

<sup>127</sup> SCImago Journal & Country Rank portal (retrieved on 14 December 2020); and BEIS (2019) *International comparison of the UK research base* (available [here](#)).

<sup>128</sup> See ¶¶5.14-5.15 above.

**Figure 7-1: Research articles published by UK authors (forecast)**

Source: FTI analysis. We estimate that the number of research articles published by UK authors grow by 3% per annum based on data from SCImago and BEIS. We estimate that the share of articles published by UK authors through the ‘Gold’ route increased at a rate of 4.5% per annum in the period from 2012 and 2016, reaching 30% in 2016. We assume (based on evidence from Jubb<sup>129</sup> and the CWTS Leiden Ranking) that this rate of growth has been decreasing by approximately 0.5% per annum and will decrease at the same rate going forward until the share of ‘Gold’ OA remains constant.

- 7.41 It is difficult to measure the share of articles by UK authors that have been published on a subscription-basis but made available through the ‘Green’ route. This is in part because the responsibility for posting articles lies with authors, and publishers do not keep records or conduct comprehensive checks to determine the number of peer-reviewed research articles that may have been posted in online repositories.

<sup>129</sup> Jubb, M. (2019) *Evidence to Inform a Response to the UKRI Review of Open Access Policies*. Publishers Association (available [here](#)).

- 7.42 It is even more challenging to measure (in a robust way) the level of ‘Green OA’ that is linked to or arises directly as a result of the existing RCUK Policy as distinct from the policies of other funders. However, in practice, the rate of deposit will likely depend on the broad policy direction adopted by research funders as a group – and, as major funders, the Research Councils and UKRI are likely to influence this policy direction significantly.<sup>130</sup>
- 7.43 Studies monitoring the UK transition to OA indicate that a significant number of peer-reviewed research articles are already available online for free. For example, a study by Universities UK (“UUK”) found that, as of 2016, 14-17% of all research articles with UK authors published on a subscription-basis were posted online as AMs within 12-24 months of publication. Only about two thirds of these postings (or approximately 10%) were in line with journal policies.<sup>131</sup>
- 7.44 There is some evidence to suggest that a small share of research articles posted in institutional repositories as AMs were not subject to an embargo at the time of posting. The UUK study found that, as of 2015 and 2017, around 20% of AMs posted in institutional repositories were not subject to an embargo. AMs posted in subject-matter repositories were generally subject to an embargo period of 12-24 months.<sup>132</sup>
- 7.45 On a conservative basis, this suggests that approximately 8% of research articles by UK authors published worldwide on a subscription-basis are currently subject to an embargo period when shared via the ‘Green’ route to OA (while 2% are not subject to an embargo period) in compliance with journal policies on embargo periods.<sup>133</sup>

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<sup>130</sup> For example, the UKRI Review sets out UKRI’s intention that compliance with the UKRI Policy would also result in compliance with the OA policy for the next REF.

<sup>131</sup> UUK (2017) *Monitoring the transition to open access: December 2017* (available [here](#)), page 24 and Figure 2.2. This is consistent with the share of articles published through ‘Delayed OA’ as illustrated in Figure 2.1 of the UUK report.

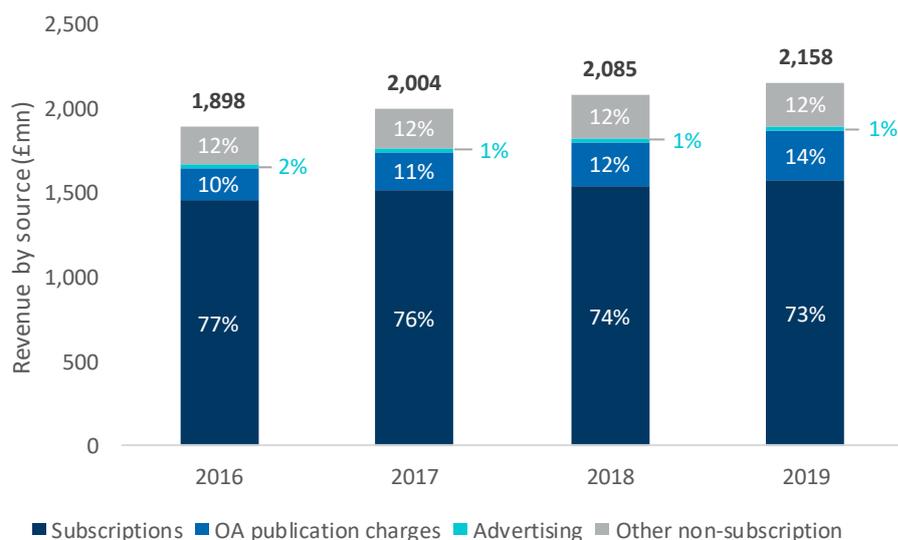
<sup>132</sup> See UUK (2017) *Monitoring the transition to open access: December 2017* (available [here](#)), Figure 1.9.2 and Figure 1.9.3.

<sup>133</sup>  $(1-20\%) \times 10\% = 8\%$ .

### Subscription revenues for UK journals

- 7.46 In 2019, worldwide revenues for UK journals totalled GBP 2,158 million.<sup>134</sup> Subscription revenues accounted for 73% of total revenues or approximately GBP 1,576 million, as set out in Figure 7-2 below.

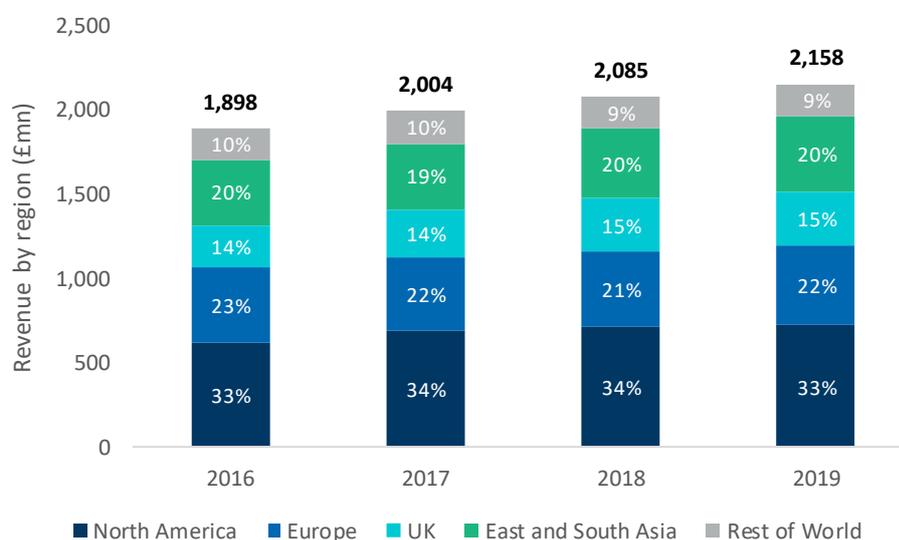
**Figure 7-2: Revenue earned by UK journals by revenue stream**



Source: *The Publishers Association, 2019 Yearbook, Table 4.6.*

- 7.47 Revenues were generated across a range of different export markets, as set out in Figure 6-3 below. In 2019, the domestic market in the UK accounted for approximately 15% of total revenue earned by UK journals, while export markets accounted for approximately 85% of total revenue. The UKRI Policy entails that research articles are made available to users around the world and would therefore affect subscription revenues not only from the UK but from across all export markets.

<sup>134</sup> Publishers Association (2020) *Yearbook 2019* (available [here](#)), Table 4.6.

**Figure 6-3: Revenue earned by UK journals by export market (GBP millions)**

Source: *The Publishers Association, 2019 Yearbook, Tables 4.6 and 4.8.*

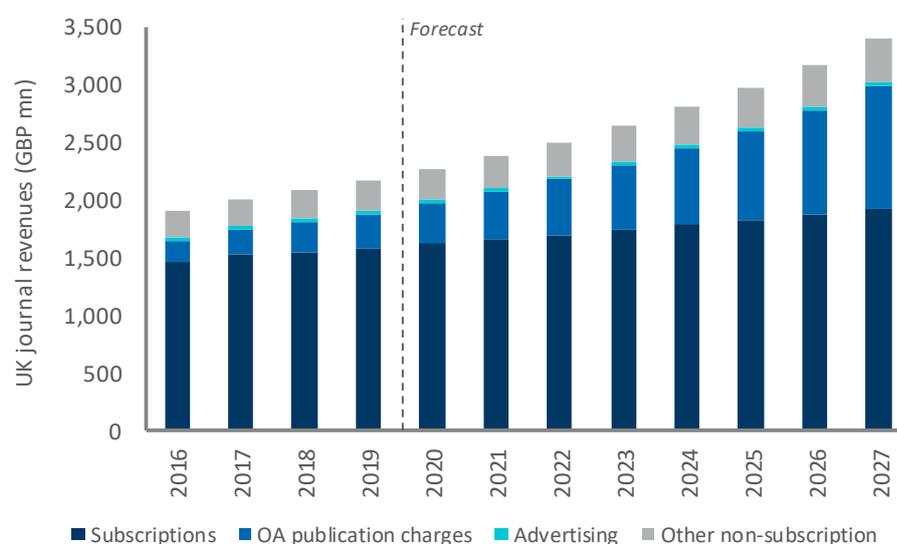
- 7.48 Some proportion of subscription revenue earned by publishers was associated with research articles published by UK authors and made available to readers through 'Green' OA. Robust information on the publishing destination of UK authors is unfortunately not available.
- 7.49 We assume that UK researchers are responsible for 20% of content in UK journals. This is based on our understanding that, as of 2019, of approximately 26,000 journals in the world, 6,088 (or 23%) were associated with the UK.<sup>135</sup> Assuming a constant number of articles across journals implies that, of approximately 2.8 million articles published globally in 2019, approximately 646,000 articles are published in UK journals.<sup>136</sup>

<sup>135</sup> SCImago Journal & Country Rank portal (available [here](#)).

<sup>136</sup> 23% of 2.8 million = 646,000.

- 7.50 If all articles produced by UK researchers were published in UK journals, UK researchers would account for just under 30% of content. We therefore assume that 2/3 of UK authored articles are published in UK journals while the remaining 1/3 are published abroad. This implies that, as of 2019, approximately GBP 315 million of subscription revenue for UK journals was associated with content produced by UK authors.<sup>137</sup> Approximately GBP 25 million would have been associated with research articles published by UK authors that were shared via the 'Green' route to OA with non-zero embargoes.<sup>138</sup>
- 7.51 Figure 7-4 below illustrates recent trends in revenue earned by UK journals and extrapolates these to 2027. We project that approximately GBP 173 million of subscription revenue earned by UK journals in the period from 2022 to 2027 would be associated with research articles published by UK authors that were shared via the 'Green' route to OA with non-zero embargoes.<sup>139</sup>

**Figure 7-4: Revenue earned by UK journals (forecast)**



*Source: FTI analysis based on data from the Publishers Association 2019 Yearbook. We project revenue in each category up to 2027 on a straight-line basis using the average annual growth rate observed in the period from 2016 to 2019.*

<sup>137</sup> 20% of GBP 1,576 million = GBP 315 million.

<sup>138</sup> 8% of GBP 315 million = GBP 25 million.

<sup>139</sup> We project that total subscription revenue for UK journals would be approximately GBP 10.8 billion in the period from 2022 to 2027. We assume that 20% (or GBP 2.2 billion) would be associated with UK authors. 8% of GBP 2.2 billion is GBP 173 million.

*Postings that are not in line with publishers' policies*

- 7.52 Studies monitoring the UK transition to OA indicate that, in addition to legitimate 'Green' OA, a significant number of peer-reviewed research articles are available in online repositories and other platforms in breach of journal policies.
- 7.53 For example, the UUK study found that VORs were the most prevalent among posted versions of articles, even though posting VOR is generally inconsistent with journal policies. The UUK study found that 31-40% of research articles with UK authors published on a subscription-basis were posted online as VOR within 12-24 months of publication.<sup>140</sup> About two thirds of postings were through platforms such as Research Gate rather than institutional or subject matter repositories.<sup>141</sup>
- 7.54 Overall, UUK found that, as of 2016, 53-59% of articles with UK authors were available online within 12-24 months of publication as pre-prints, AMs or VORs. This is higher than comparable estimates published by the European Commission, which indicate that in the period from 2009 to 2018 up to 44% of research articles published in the UK under a subscription-based publishing model were eventually made available in OA repositories.<sup>142</sup> A significant share of this content would have been in breach of journal policies.
- 7.55 We note that the number of research articles made available illegally through platforms such as SciHub is greater still. Studies show that SciHub hosts version of record copies of practically all subscription-based publications since 2015 and, also, large portions of earlier literature. Although the subscription-based publications that are added to SciHub are harvested illegally, they remain available online to users around the world.<sup>143</sup>
- 7.56 We explain above that approximately GBP 25 million of subscription revenue earned by UK journals in 2019 was associated with research articles published by UK authors that were made available through the 'Green' route to OA in a legitimate way.<sup>144</sup> A much greater share of revenue is associated with articles that were made available in ways that were not consistent with journal policies.

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<sup>140</sup> UUK (2017) *Monitoring the transition to open access: December 2017* (available [here](#)), Figure 2.2.

<sup>141</sup> UUK (2017) *Monitoring the transition to open access: December 2017* (available [here](#)), Figure 2.3.

<sup>142</sup> European Commission, *Trends for open access to publications* (available [here](#)).

<sup>143</sup> See UUK (2017) *Monitoring the transition to open access: December 2017* (available [here](#)), page 18 (box).

<sup>144</sup> See ¶7.50 above.

*Customer price sensitivity*

- 7.57 Many librarians maintain that there is no link between articles becoming accessible via repositories or other services and libraries' willingness to continue to pay for journal subscriptions.<sup>145</sup> Indeed, a 2014 study conducted by the British Academy suggests that financial constraints are much more important in influencing libraries' decisions to maintain or cancel subscriptions.<sup>146</sup>
- 7.58 Yet higher education budgets in the UK have been under pressure for some time. Unless library budgets increase in line with annual growth in the number of published articles, libraries will have little choice but to cancel certain subscriptions. Indeed, it seems that university libraries are already paying close attention to usage data when it comes to renegotiating deals and subscriptions,<sup>147</sup> supported by new technologies that help track usage patterns such as Unpaywall and Unsub. At the same time, centralised repositories are working to enhance the usability and value of the AMs that they host, thus reducing the difference between AMs and VORs. Finally, the availability of research articles online is also contributing to falling usage of library services.

*Impact of the UKRI Policy on the level of 'Green' OA*

- 7.59 As discussed above,<sup>148</sup> the UKRI Policy proposal will affect libraries' and other subscribers' willingness to pay subscription fees in respect of research articles that are made available through the 'Green' route to OA and lead to a loss of subscription revenue for academic publishers.
- 7.60 Readers will be more likely to access research articles through online repositories as a result of 'Green with zero' and the subsequent fall in usage levels on academic publishers' platforms will encourage libraries to review journal subscriptions and cancel those with lowest usage. Libraries will also have fewer incentives to subscribe to VORs if readers are able to access AMs under a licence that allows maximum re-use, as proposed by the UKRI Policy.

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<sup>145</sup> Jubb, M. (2019) *Evidence to Inform a Response to the UKRI Review of Open Access Policies*. Publishers Association (available [here](#)), pages 20-21.

<sup>146</sup> Jubb, M. (2019) *Evidence to Inform a Response to the UKRI Review of Open Access Policies*. Publishers Association (available [here](#)), page 21; and Darley, R. Reynolds, S. Wickham, C. (2014) *Open Access Journals in Humanities and Social Science* (available [here](#)).

<sup>147</sup> Jubb, M. (2019) *Evidence to Inform a Response to the UKRI Review of Open Access Policies*. Publishers Association (available [here](#)), pages 20-21.

<sup>148</sup> See ¶7.7 above.

- 7.61 In the first instance, publishers will experience loss of revenue in respect of research articles that are posted in online repositories in line with journal policies, and which will become available immediately as the zero embargo period is introduced.
- 7.62 However, the UKRI Policy will also give greater legitimacy to certain postings of research articles that would have been in breach of journal policies previously. For example, as of 2016, one third of all AMs that were posted in online repositories were in breach of journal policies<sup>149</sup> – most likely because they were posted before the expiry of an initial embargo period or in unapproved repositories. The UKRI Policy would give greater legitimacy to all postings that took place before the expiry of an embargo going forward.
- 7.63 Furthermore, it is likely that UKRI Policy will apply to a greater number of research articles than the existing RCUK Policy. There is also a risk that the policy will set a new expectation among researchers that all research articles should be posted in online repositories upon publication. This will encourage authors to post a greater number of articles even if this is inconsistent with existing journal policies. Indeed, proposals put forward by Plan S would allow authors to ‘retain their rights’ to peer-reviewed research and allow them to post articles upon publication with a CC BY licence notwithstanding any restrictions imposed by publishers.<sup>150</sup> This would lead to more content being available online for free, and affect the usage of content on publisher platforms and through library services, thereby encouraging libraries to review and potentially cancel subscriptions.

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<sup>149</sup> See ¶7.43 above.

<sup>150</sup> cOAlition S, *Plan S Rights Retention Strategy* website (available [here](#)).

- 7.64 We consider the impact of the UKRI Policy with reference to four scenarios that reflect different assumptions about the share of subscription-based content (and, by extension, subscription-based revenue) that would be at risk as a result of the UKRI Policy. **For each scenario, we consider the share of research articles by UK authors that would be made immediately available via ‘Green’ OA with zero embargo as a result of the UKRI Policy.** In particular:
- In **Scenario 1 (Unlikely case)** we consider the impact of the proposed UKRI Policy based on the current prevalence of ‘Green’ OA with embargo that is in line with journal policies. We consider what would happen if they were now posted with no embargo period. We assume that **10% of all research articles published by UK authors in subscription journals are posted in institutional or subject-matter repositories as AMs** (of which 8 percentage points have non-zero embargoes) – and that libraries would no longer subscribe to this content to the same extent as before as a result of the UKRI Policy.<sup>151</sup> Given the relatively low share of content, the extent of any price response from libraries is likely to be limited and subscriptions may not fall in proportion to the increased availability of content even over time. However, some libraries may nevertheless seek a reduction in total subscription fees in approaching negotiations.<sup>152</sup> We therefore assume a price responsiveness of less than 1 in this scenario.
  - In **Scenario 2 (AM-only case)** we consider the impact of the proposed UKRI Policy based on observed patterns for posting AMs in online repositories (some of which are not in line with current journal policies). We consider what would happen if they were now posted with no embargo period. Drawing on the findings of the UUK report, **we assume that 15% of all research articles published by UK authors in subscription-based journals are posted in online repositories as AMs** – and that the UKRI Policy would give greater legitimacy to any postings of AMs that were previously not in line with journal policies as it comes into force. We assume that the extent of the price response from libraries is likely to be stronger in this scenario and that prices will fall in proportion to the increased availability of content.

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<sup>151</sup> Based on the findings of the UUK report for articles with UK authors.

<sup>152</sup> Some librarians have stated publicly that their decisions on whether or not to continue to subscribe to specific journals are influenced by the percentage of content that is freely available online (see Jubb, M. (2019) *Evidence to Inform a Response to the UKRI Review of Open Access Policies*. Publishers Association (available [here](#)), pages 22-23).

- In **Scenario 3 (VOR-only case)** we consider the impact of the proposed UKRI Policy based on observed patterns for posting VORs in online repositories. We consider what would happen if they were now posted with no embargo period. Drawing on the findings of the UUK report, **we assume that 35% of all research articles published by UK authors in subscription-based journals are posted in online repositories as VORs** – and that the UKRI Policy would give greater legitimacy to these postings by allowing authors the option to post AMs with a licence that allowed re-use, thereby reducing the need to post VORs as it comes into force. We assume that prices will fall at least in proportion to the increased availability of content but potentially more (that is, a price responsiveness of more than 1).
- In **Scenario 4 (the Combined case)** we consider the impact of the proposed UKRI Policy based on observed patterns for posting AMs and VORs in online repositories and platforms. **We assume that 50% of all research articles published by UK authors in subscription-based journals are posted in online repositories as AMs or VORs** – and that the UKRI Policy would give greater legitimacy to some proportion of these postings as it comes into force. We assume that this content would no longer be subscribed to by university libraries to the same extent as before as a result of the UKRI Policy and that prices will fall at least in proportion to the increased availability of content but potentially more (that is, a price responsiveness of more than 1).

7.65 **We consider Scenario 4 to represent a likely impact of the UKRI Policy.** This is because the usage of content on publishers' platforms is likely to be linked to the overall availability of research articles online rather than the availability of articles that are posted in line with journal policies. The UKRI Policy will also allow authors to post AMs with a licence that allows extensive re-use thereby substantially reducing the need to post VORs in breach of journal policies. Overall, we consider that libraries will have fewer incentives to subscribe to this wider body of content as a result of the UKRI Policy.

*Estimated loss of revenue for UK journals*

7.66 Table 7-1 sets out the results of our simulation for each scenario based on 2019 financial data. For each scenario, we consider the share of research articles by UK authors that would be made immediately available via 'Green' OA with zero embargo as a result of the UKRI Policy. We make an adjustment to recognise that a small share of subscription-based research articles (2%) appears to be available with zero embargo already.<sup>153, 154</sup>

**Table 7-1: Immediate loss of subscription revenue for UK learned journals (GBP millions, based on 2019 financial data)**

<b>Scenario</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Worldwide revenue for UK journals (2019, £m)	A	2,158	2,158	2,158	2,158
Share of revenue associated with subscriptions (2019, £m)	$B = A \times (73\%)$	1,576	1,576	1,576	1,576
Share of subscription revenue associated with UK authors (2019, £m)	$C = B \times (20\%)$	315	315	315	315
Share of articles by UK authors made available via Green OA (%)	D	10%	15%	35%	50%
Share of articles by UK authors made available via Green OA with non-zero embargoes (%)	$E = D - 2\%$	8%	13%	33%	48%
Price responsiveness	F	<1	1	>1	>1
<b>Loss of revenue per year (£m)</b>	<b><math>G = C \times E \times F</math></b>	<b>&lt;25</b>	<b>41</b>	<b>&gt;104</b>	<b>&gt;151</b>

*Source: FTI analysis.*

<sup>153</sup> See ¶7.44 above.

<sup>154</sup> Although not necessarily under a CC BY licence. In this sense, our estimate is conservative.

- 7.67 Using 2019 data, we estimate that the immediate impact of the UKRI Policy under Scenario 1 would be a loss of subscription revenue to UK journals of up to approximately GBP 25 million per annum. We project that the loss of revenue would be up to approximately GBP 173 million in the period from 2022 to 2027.<sup>155</sup>
- 7.68 We estimate that the immediate impact of the UKRI Policy under Scenario 2 and Scenario 3 would be greater and imply the loss of subscription revenue to UK journals of approximately GBP 41 million under Scenario 2 and GBP 104 million under Scenario 3. This would imply a combined loss of GBP 151 million under Scenario 4. We project that the loss of revenue would be approximately GBP 281 million under Scenario 2,<sup>156</sup> GBP 714 million under Scenario 3,<sup>157</sup> and GBP 1.0 billion under Scenario 4 in the period from 2022 to 2027.<sup>158</sup>
- 7.69 We note that the impact on subscription revenues would not be uniform across journals. In practice, those journals with a higher proportion of content produced by researchers funded by UKRI (and other bodies that choose to follow suit) would be most affected.

#### *Sensitivity analysis*

- 7.70 We provide a sensitivity on Scenario 4 to reflect the impact of potential dynamic effects, which would follow the immediate effect of a move to Green OA with zero embargo. In particular:
- (1) Individual researchers may be more motivated to post articles in repositories as a result of the policy (due to reduced inertia).
  - (2) The policy may also encourage other UK funders to align their funding policies with the UKRI Policy, resulting in an ever greater proportion of articles produced by UK researchers being made available under 'Green with zero'.
  - (3) Finally, some international funding bodies abroad may also seek to align their funding policies with the new UKRI Policy, resulting in some proportion of non-UK authors' articles also being made available under 'Green with zero'.

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<sup>155</sup> We project that total subscription revenue for UK journals would be approximately GBP 10.8 billion in the period from 2022 to 2027. We assume that 20% (or GBP 2.2 billion) would be associated with UK authors. 8% of GBP 2.2 billion is GBP 173 million.

<sup>156</sup> 13% of GBP 2.2 billion is GBP 281 million.

<sup>157</sup> 33% of GBP 2.2 billion is GBP 714 million.

<sup>158</sup> 48% of GBP 2.2 billion is GBP 1.0 billion.

- 7.71 We assume that the share of content published in UK journals and produced by UK authors remains constant over time, and that:
- (1) 35% of research articles published in UK journals would be ultimately impacted by the policy (rather than 20%) to reflect a key funder in the UK and another major economy aligning with the UKRI Policy;
  - (2) 55% of research articles published by UK authors are eventually legitimately posted in online repositories as AMs or VORs (to account for reduced inertia).<sup>159</sup>
- 7.72 Using 2019 data, we estimate that the UKRI Policy would result in a loss of revenue to UK journals of at least GBP 292 million per annum when such dynamic effects are accounted for.<sup>160</sup> **We project that the loss of revenue would be approximately GBP 2.0 billion in the period from 2022 to 2027.**<sup>161</sup>

#### Increase in publication expenses

- 7.73 The UK Government has previously established a preference for OA via the ‘Gold’ route.<sup>162</sup> However, research intensive universities would come under new pressure to find additional funding to enable their academic staff to publish in those journals that transition their business models to ‘Fully OA’ as a result of the UKRI Policy. We understand that the number of journals that are likely to transition to ‘Fully OA’ will depend on journal specialism and the level of funding that is made available for OA publishing. It is challenging to estimate how many journals would ultimately choose to transition in a robust way, although we understand that the number is likely to be low (unless additional funding is made available to support a transition to greater OA).

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<sup>159</sup> The same proportion would apply to content produced by non-UK authors published in UK journals.

<sup>160</sup> 35% of 2019 subscription revenue for UK journals is GBP 552 million. We assume that the share of articles posted in online repositories as a result of the UKRI Policy is 55%, of which 2 percentage points are already available with no embargo. 53% of GBP 552 million is GBP 292 million.

<sup>161</sup> We project that total subscription revenue for UK journals would be approximately GBP 10.8 billion in the period from 2022 to 2027. We assume that 35% (or GBP 3.7 billion) would be associated with authors who publish under the terms of the UKRI Policy (or similar). 53% of GBP 3.7 billion is GBP 2.0 billion.

<sup>162</sup> See, for example: letters from the UK Government to Professor Tickell in 2016 and 2019 (available [here](#) and [here](#)).

- 7.74 We have considered the increase in expenditure for research intensive universities in the UK in the event that a considerable number of journals choose to transition to ‘Fully OA’ in response to the UKRI Policy. We also consider the gross benefit to libraries associated with lower subscription fees on this basis. **The resulting net cost is indicative of the level of funding that would be required to achieve greater OA of the VOR.**

*Gross cost to research intensive universities*

- 7.75 In 2019, researchers associated with higher education institutions in the UK produced around 188,000 research articles.<sup>163</sup> However, research output is skewed heavily towards a relatively small number of research-intensive universities. As discussed in Section 4 above,<sup>164</sup> in the period from 2015 to 2018, the ‘Top 10’ most research intensive institutions in the UK accounted for around one third of the UK’s research output while the ‘Top 20’ institutions accounted for over one half.<sup>165, 166</sup>
- 7.76 In 2016, UK higher education institutions spent an estimated GBP 57 million on APC charges.<sup>167</sup> A transition from a subscription-based publishing model to ‘Gold’ OA would shift the burden of paying for publication from the readers of research towards authors and their associated institutions. This redistributive effect means that a transition towards Gold OA would skew the cost of publishing research towards a relatively small number of research-intensive universities.

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<sup>163</sup> Information retrieved from the SCImago Journal & Country Rank portal (based on the Scopus database maintained by Elsevier) indicates that researchers associated with higher education institutions in the UK authored 188,259 research articles in 2019 (retrieved on 14.12.2020. Available [here](#)).

<sup>164</sup> See ¶15.18 and Figure 5-2 above.

<sup>165</sup> FTI analysis based on the CWTS Leiden Ranking on the volume, scientific impact, open access publishing, collaboration and gender diversity of academic publications by university.

<sup>166</sup> FTI analysis based on the CWTS Leiden Ranking on the volume, scientific impact, open access publishing, collaboration and gender diversity of academic publications by university.

<sup>167</sup> UUK (2017) *Monitoring the transition to open access: December 2017* (available [here](#)), Appendix 2, page 4.

- 7.77 We estimate the increase in ‘Gold’ OA publications that would likely occur if UKRI’s proposals were implemented. In practice, the most affected journals would be most likely to transition to APC-based publishing, while journals that are less affected may choose to respond to any potential revenue impact by managing their publishing costs and margins.
- 7.78 To reflect the overall effect on the sector, we continue to use the three scenarios on the prevalence of OA as developed in Table 7-1 above. However, we note that, in practice, only a few journals are likely to transition to ‘Fully Gold’ immediately.
- 7.79 Table 7-2 below sets out the number of UK research articles that would transition to ‘Gold’ OA under each of the four scenarios, under the assumption that all articles that would have been made available under ‘Green’ OA with zero embargo under the new UKRI Policy would transition to ‘Gold’ OA.<sup>168 169</sup>

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<sup>168</sup> Those journals that transition to APC-based publishing would likely do so for all articles (including those that were already subscription-based with zero embargo). In this sense, the estimates for the prevalence of Green OA that we use here are conservative.

<sup>169</sup> We use the total number of research articles published by UK researchers as the basis for this calculation. Some authors will seek to publish abroad, and UK universities will continue to pay APCs if those journals also choose to transition to ‘Fully Gold’ to accommodate the policy. International journals with weak ties to the UK may also choose not to accept the terms of the UKRI policy and continue to operate on a subscription-basis. In this case, authors would likely choose to publish in a journal that accepted the UKRI’s policy.

**Table 7-2: Increase in UK research articles published via the 'Gold' route**

<b>Scenario</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Research articles published by UK researchers (2019)	A	188,259	188,259	188,259	188,259
Share of articles published on a subscription basis (2019)	B = A x 60%	112,962	112,962	112,962	112,962
Share of articles made available via Green OA with non-zero embargoes (%)	C	8%	13%	33%	48%
<b>Increase in UK authored Gold OA research articles</b>	<b>D = B x C</b>	<b>9,037</b>	<b>14,685</b>	<b>37,277</b>	<b>54,222</b>

Source: FTI analysis.

7.80 There is a wide range of estimates for APCs paid by UK universities. We use three APC scenarios to estimate the potential range of impact:

- In the **low APC** scenario, we calculate a weighted average APC using 2019 data provided to us by journal publishers, along with publicly available APC price lists. This provides a value of approximately GBP 2,400.
- In the **middle APC** scenario, we utilise data available from the University of Cambridge, which summarises the University's APC payments in the period from April 2013 to March 2018. We extrapolate the average APC for 2018 forwards to 2019, using the average annual growth rate over the period for which data are available.<sup>170</sup> Rounded to the nearest hundred, this provides a value of GBP 2,500.

<sup>170</sup> University of Cambridge (2018) *Cambridge Open Access spend 2013-2018* (available [here](#)), page 2.

- In the **high APC** scenario, we build on data provided by the Charity Open Access Fund (“**COAF**”) on the APC payments it has incurred over the years 2015/16 to 2017/18.<sup>171</sup> We extrapolate the average APC for 2017/18 to 2018/19 using the average annual growth rate over the period for which data are provided.<sup>172</sup> Rounded to the nearest hundred, this provides a value of GBP 2,600.

- 7.81 We consider each scenario to represent a credible estimate for the average APC faced by UK researchers, rather than covering the full range of possible charges. Actual APCs vary significantly from journal to journal, with some costing less than GBP 500 and others exceeding GBP 5,000.<sup>173</sup>
- 7.82 By multiplying the estimated increase in Gold OA publications (as set out in Table 7-2 above) by each APC, we produce a range of annual cost estimates, as set out in Table 7-3 below. These estimates reflect the cost of moving to APC-based publishing for UK universities. This cost would be in addition to the costs that are currently being paid by UK HEIs to publish an estimated 40% of the research articles produced by UK authors under Gold OA.

**Table 7-3: Total UK cost increase associated with a shift to Gold OA publishing, GBP millions per annum**

Scenario		1	2	3	4
Increase in publications		9,037	14,685	37,277	54,222
Low APC	£2,400	22	35	89	130
Medium APC	£2,500	23	37	93	136
High APC	£2,600	23	38	97	141

Source: FTI analysis.

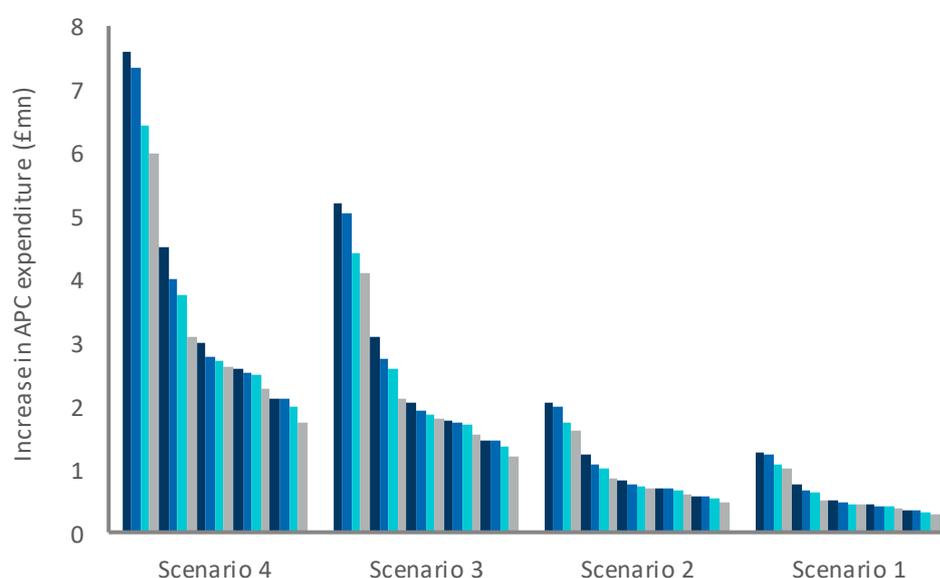
<sup>171</sup> We note that more recent APC data are available from Wellcome, which show that, unlike previous years, the growth in COAF’s average APC payment flattened in 2018/19. This was partially driven by a drop in the number of articles published in more expensive fully OA journals, and greater APC savings derived from transformative agreements. Therefore, for our high APC scenario, we base our estimate on the average growth rate in APCs pre-2018/19. Source: Wellcome, *Wellcome and COAF open access spend 2018-19* (available [here](#)).

<sup>172</sup> Wellcome, *Wellcome and COAF open access spend 2017-18* (available [here](#)).

<sup>173</sup> University of Cambridge (2018) *Cambridge’s RCUK/COAF Open Access spend January 2017 – March 2018* (available [here](#)), Figure 1.

- 7.83 Research intensive universities will need to cover a disproportionately large share of this cost and would likely need additional funding to manage the increasing cost of publication.<sup>174</sup> We assume that the total cost burden will be distributed between universities in proportion with their existing share of UK publications. Using this approach, we calculate that the 'Top 20' most research intensive universities would need to cover approximately half of the increase in publication costs in each scenario, as set out in Figure 7-5 below.

**Figure 7-5: Increase in APC expenditure for the most research-intensive UK universities (GBP millions, medium APC)**



*Note: Top 20 research intensive universities in the UK are: University of Oxford, UCL, University of Cambridge, Imperial College London, University of Manchester, King's College London, University of Edinburgh, University of Southampton, University of Bristol, University of Birmingham, University of Nottingham, University of Sheffield, University of Liverpool, University of Leeds, University of Glasgow, University of Warwick, Cardiff University, Newcastle University, Queen Mary University of London, University of Exeter.*

*Source: FTI analysis.*

<sup>174</sup> Transformative agreements could perhaps mitigate this impact to some extent. However, it is challenging to estimate this effect with confidence.

- 7.84 Unless additional funding is provided to cover increasing APC costs, a transition to Gold OA while maintaining the current level of research output is unlikely to be affordable for research intensive universities. Such concerns have already been expressed by several UK universities, with the University of Oxford recently stating that “*without comprehensive funding, a series of problems will arise.*”<sup>175</sup>

*Gross benefit to libraries*

- 7.85 UK libraries would no longer expect to pay subscription fees for those research articles that had been published through Gold OA. However, they would still need to pay subscription fees in respect of the back catalogue and any research articles that do not acknowledge funding from OA-focused funding bodies. This may include: research articles published in UK journals that are the result of projects funded by funders who are not focused on OA; research articles published in foreign journals that are not focused on OA; and research articles that are the output of privately funded projects.
- 7.86 We estimate that university libraries in the UK would, in total, save in the order of GBP 0.5-3.0 million in subscription fees each year as a result of the UKRI Policy, bearing in mind that the policy only applies to content funded by UKRI and not global content. This is based on the following assumptions:
- In 2019, journals around the world published approximately 2.2 million research articles on a subscription basis.<sup>176</sup> UK journals contributed approximately 113,000 articles on a subscription basis.<sup>177</sup> The increase in APC-based publishing under the four scenarios would therefore represent around 0.4-2.5% of the total volume of subscription articles in the world.<sup>178</sup>
  - In 2019, UK universities paid approximately GBP 120 million on global journal subscriptions.<sup>179</sup> A decrease in subscription content of 0.4-2.5% would imply an annual saving in the range of GBP 0.5 to 3.0 million (assuming that subscription fees would fall in line with the decrease in subscription-based content).

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<sup>175</sup> Oxford University (2020) *UKRI OA Review, University of Oxford Responses* (available [here](#)). See also: University of Cambridge (2020) *UKRI Open Access Consultation- University of Cambridge Response* (available [here](#)).

<sup>176</sup> Elsevier, *Supporting open access website* (available [here](#)). Accessed 20.12.2020.

<sup>177</sup> See Table 7-2 above.

<sup>178</sup> 9,000k articles in the ‘Best’ scenario represent c. 0.4% of world output; and 54,200 articles in the ‘Worst’ case scenario represent c. 2.5% of world output.

<sup>179</sup> Lawson, S. (2020) *Journal subscription expenditure in the UK 2010-2019* (available [here](#)).

- 7.87 This is a conservative estimate based on the assumption that UK articles are cited at the same rate as other articles in the world. However, the UK has a higher than average citation score and libraries could therefore expect a higher saving than implied by the calculation above. Savings would also increase in the event of further reciprocal arrangements with (or action from) other jurisdictions.

## 8. Economic impact of proposed restrictions for monographs

### Introduction

- 8.1 In this Section, we consider the impact of the new UKRI Policy on academic monographs.
- 8.2 We first discuss the role of academic monographs in research and scholarly communications in the UK. We also describe the process through which monographs are produced and the main models for publishing academic monographs that exist in the UK today.
- 8.3 We then discuss the impact of the new UKRI Policy on academic monographs. As we explain below,<sup>180</sup> this is challenging to assess meaningfully and with confidence for two reasons in particular:
- (1) It is not clear how many monographs are published in the UK each year. Indeed, there are relatively few studies describing the workings of the academic book market in detail and no databases or reports collating quantitative information on monographs in the same way as there are for research articles published in scholarly journals. It is also unclear how many monographs published in the UK are in receipt of funding from UKRI and its constituent councils, including recurrent funding through Research England.
  - (2) The terms of the new UKRI Policy in relation to monographs are unclear in certain respects. In particular, the reference to the “*author’s accepted manuscript*”<sup>181</sup> within the policy is unclear given that monographs are often the result of a collaboration between authors and editors (meaning there is no “*manuscript*” version that has not had publisher input or investment). Also, it is uncertain how many monographs will be in scope of the UKRI Policy given proposed exemptions for recurrent funding from Research England and UKRI’s intention that the policy should inform the development of the OA policy for the next REF.<sup>182</sup>

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<sup>180</sup> See ¶¶8.43-8.47 below.

<sup>181</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), page 11 (summary box).

<sup>182</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶29 and FN12.

- 8.4 Drawing on the evidence that is available, we find that the UKRI Policy will affect: (1) libraries' incentives to buy monographs and (2) authors', universities', and funders' willingness to pay fees for OA publishing. This will, in turn, have an impact on publishers' ability to recover the cost of their investment in publishing monographs.
- 8.5 As a result, publishers will exercise caution in taking on book projects that are not in receipt of funding to cover BPCs, while HEIs will come under pressure to produce additional funding to enable their academic staff to publish. However, we understand that UKRI is still considering how to support the funding of OA monographs, book chapters and edited collections.<sup>183</sup>
- 8.6 Ultimately, researchers may have fewer opportunities to write academic books, which would affect their academic prospects and discourage talented individuals from working in academia in the UK. UK research would risk becoming less impactful and less well-regarded, with a knock-on effect on the UK's standing as a global research hub.

#### **The role of monographs in research and scholarly communications**

- 8.7 Monographs are highly specialised works on a single argument or theme, typically intended for subject specialists rather than a general audience.<sup>184</sup> They form a particularly important part of the reading and the output of AHSS scholars and remain an important vehicle for dissemination and debate of new research in these disciplines.<sup>185</sup>
- 8.8 Academic monographs can define an area of study or a particular subject for many years.<sup>186</sup> Individual chapters may also represent a significant contribution to research and scholarship. Monographs are particularly valued by researchers for their accuracy and quality,<sup>187</sup> which is ensured through an extensive peer-review and editorial process.

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<sup>183</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶110.

<sup>184</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph*, (available [here](#)), page 7.

<sup>185</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph* (available [here](#)), page 3.

<sup>186</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph* (available [here](#)), page 4.

<sup>187</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph* (available [here](#)), page 15.

- 8.9 Monographs are seen by researchers as having greater longevity than research articles and are often used as reference works.<sup>188</sup> There has been continued interest among researchers in coexisting print and digital formats for monographs for some time,<sup>189</sup> which is perhaps why the online infrastructure for depositing monographs is less developed than comparable infrastructure for research articles.<sup>190</sup>
- 8.10 Writing academic monographs plays an important part in the career progression of academics across a wide range of disciplines and of AHSS scholars in particular.<sup>191</sup> Monographs are a source of prestige and standing for many authors and publishing a monograph may determine eligibility for certain academic jobs.<sup>192</sup> For established academics, publishing monographs plays an important role in being awarded tenure and other intangible benefits.<sup>193</sup>
- 8.11 It is unclear how many monographs are written by UK authors each year. There are relatively few studies describing the workings of the academic book market in detail and no database, repositories or reports collating quantitative information on monographs in the same way as there is for research articles published in scholarly journals. However, it seems that researchers who write monographs tend to be funded primarily through recurrent funding from Research England rather than grant funding from the disciplinary Research Councils.<sup>194</sup>

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<sup>188</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph* (available [here](#)), page 29.

<sup>189</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph* (available [here](#)), page 5.

<sup>190</sup> Jisc (2018) *Open Access Monographs in the UK* (available [here](#)), page 2. See also: UUK (2019), *Open Access and Monographs* (available [here](#)), page 26.

<sup>191</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph* (available [here](#)), page 29.

<sup>192</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph* (available [here](#)), page 29.

<sup>193</sup> CUP & OUP (2019) *Researchers' perspectives on the purpose and value of the monograph* (available [here](#)), page 29.

<sup>194</sup> University of Cambridge (2020) *UKRI Open Access Consultation- University of Cambridge Response* (available [here](#)), page 26.

- 8.12 Monographs form an important part of UK universities' submissions to the REF funding review. Around 8,500 monographs were submitted for evaluation to the Arts and Humanities Panel (Panel D) of REF2014.<sup>195</sup> Of these, 30% were published by the 'Top 4' monograph publishers – OUP, CUP, Palgrave and Routledge. This suggests that a long tail of smaller publishers account for a potentially significant number of monographs published in the UK.
- 8.13 Research conducted by Jisc suggests that the 'Top 4' monograph publishers in the UK published approximately 6,650 titles in 2016.<sup>196</sup>

### **Producing and publishing monographs**

- 8.14 Writing and publishing monographs is an endeavour that takes several years from commissioning to publication.
- 8.15 Monographs are often the product of collaborations between researchers and editors working for academic publishers. Editors from well-established publishers will attend conferences, workshops and seminars in the related field, meet with researchers at their institutions, and conduct desk-based research to develop book concepts. They will also test these concepts against the prevailing publishing market landscape to assess the likely demand for a book before agreeing a scope with a researcher. Publishers are therefore involved in the development and production of a monograph essentially from its inception.

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<sup>195</sup> Jisc (2018) *Open Access Monographs in the UK* (available [here](#)), page 1.

<sup>196</sup> Jisc (2018) *Open Access Monographs in the UK* (available [here](#)), page 2.

- 8.16 Peer review for monographs is arranged by the publisher and conducted by researchers and academics who are experts in the relevant field, as demonstrated by their research output and publication history. We understand that peer review for monographs is typically remunerated and tends to happen at two points:<sup>197</sup>
- (1) **Proposal review before offering a book contract.** This is an important step in assessing the suitability of a book for the target audience and, also, whether the author is well-placed to write the book in terms of research experience and academic standing. Unfavourable reviews would mean that a proposal is declined.
  - (2) **Review of the completed manuscript before accepting it for publication.** At this stage, the reviewer will read the manuscript and assess its value and contribution to the field and its readiness for publication. They will also check for any controversial content and that any concerns which may have been raised at proposal stage have been addressed.
- 8.17 Peer review and subsequent editorial review is often an iterative process. The eventual cost of producing a monograph will depend on the length of the published work and the number of iterations.
- 8.18 Once the final manuscript is formally accepted for publication, publishers carry out proofing and pre-production checks, including checks for copyright permissions and plagiarism. Production involves copy-editing and type-setting the manuscript, and producing and archiving the print and electronic formats of the book. Publishers then promote the book and ensure that marketing material is optimised for search engines to promote discovery. Post-publication data on downloads, citations and print sales is also shared with authors.

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<sup>197</sup> Based on information provided by academic book publishers.

### Publishing models for monographs

- 8.19 As explained in Section 5 above,<sup>198</sup> we understand that the majority of monographs are published using the traditional ‘reader pays’ model.<sup>199</sup> This implies that, for the most part, academic publishers recover the cost of publishing monographs through sales to libraries and other interested parties.
- 8.20 The ‘author pays’ model for publishing research, which is also known as the ‘Gold’ route to OA, is less common in respect of monographs. Evidence suggests that the ‘Green’ route to OA is only employed by a handful of institutions at most.<sup>200</sup>
- 8.21 We provide further detail on each publishing model in turn below.
- ‘Reader pays’*
- 8.22 ‘Reader pays’ is the most prevalent model for publishing academic monographs in the UK. Evidence suggests that many authors prefer to publish monographs in this way, as it is often associated with more robust quality assurance and certification, and restricts the re-use of content and the creation of derivatives.<sup>201</sup>
- 8.23 ‘Reader pays’ also allows publishers to recover the cost of their investment in producing and publishing monographs. We understand that monograph sales and, indeed, revenues tend to peak within the first two years after publication but remain steady for several years thereafter.<sup>202</sup>

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<sup>198</sup> See ¶15.8 and ¶15.17 above.

<sup>199</sup> Information provided by publishers of academic books suggests that, as of 2019, 95% of monographs were published using the traditional ‘reader pays’ model.

<sup>200</sup> See ¶18.34 below.

<sup>201</sup> See, for example: a 2018 position paper by the British Academy titled: *Open access and monographs: Where are we now?* (available [here](#)), page 3; and Jisc (2018) *Open Access Monographs in the UK* (available [here](#)), page 4.

<sup>202</sup> UUK (2019), *Open Access and Monographs* (available [here](#)), page 16.

- 8.24 However, evidence suggests that sales revenue from monographs is relatively low compared to that from other types of academic publications. In particular:
- (1) A 'landscape study' from 2017 found that, on average, monographs sold less than 200 copies per title over the course of a three-year period.<sup>203</sup> Over 50% of sales came from exports.<sup>204</sup>
  - (2) The average price of monographs submitted to REF2014 was in the order of GBP 50, although the price of individual books varied significantly (from less than GBP 10 up to approximately GBP 780).<sup>205</sup> Prices were lower for paperback editions and higher for hardback editions (in the order of GBP 25 and GBP 80 for AHSS books, respectively).<sup>206</sup>
- 8.25 Overall, sales revenue associated with publishing academic monographs would appear to be relatively low compared to other types of academic publications. For example, an academic press producing 500 monographs each year might be expected to generate in the order of GBP 10 million in sales revenue in respect of these books over time.<sup>207</sup> A significant share of this revenue would likely come from exports.
- 8.26 There is some evidence to suggest that profit margins for monographs may also be lower than for other types of academic publications.<sup>208</sup>

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<sup>203</sup> Knowledge Exchange (2017) *Landscape study on OA and Monographs* (available [here](#)), page 141.

<sup>204</sup> Knowledge Exchange (2017) *Landscape study on OA and Monographs* (available [here](#)), page 84.

<sup>205</sup> The mean average cost of monographs submitted to REF2014 was in the order of GBP 50, although the price of individual books varied significantly (from approximately GBP 6.99 to GBP 779). See: UUK (2019), *Open Access and Monographs* (available [here](#)), page 26, FN17.

<sup>206</sup> Fund, S. Mosterd, M. Godek, P. (2019) *Open Access Monographs in the UK: A data analysis* (available [here](#)), page 22.

<sup>207</sup> Assuming each one of the 500 titles sells 200 copies in the first three years after publication and a further 200 copies thereafter – for a total of 400 copies – at a retail price of GBP 50.

<sup>208</sup> UUK (2019), *Open Access and Monographs* (available [here](#)), page 26. See also: Oxford University (2020) *Oxford University response to UKRI Open Access Review Consultation* (available [here](#)), pages 21 and 22.

*'Author pays'*

- 8.27 As explained above,<sup>209</sup> the 'author pays' model for publishing research, which is also known as the 'Gold' route to OA, is less common in respect of monographs.
- 8.28 This is perhaps because the cost of publishing books is much higher than the cost of publishing research articles. We understand that BPCs can be in the order of GBP 6,000 to GBP 10,000.<sup>210</sup> This reflects the significant editorial effort involved in producing a monograph, as described above.<sup>211</sup>
- 8.29 In addition, monographs tend to communicate the outputs of research that is supported through recurrent funding. There are limited grants available to support OA publishing for books – although organisations such as the Wellcome Trust offer dedicated funding to cover the cost of BPCs.<sup>212</sup>
- 8.30 Nevertheless, in some cases researchers pay a fee to publish monographs and make these available to readers on an OA-basis. In some cases, researchers pay a fee (known as the CPC) to make a specific chapter available on an OA-basis.
- 8.31 We note that, in some cases, the 'author pays' approach has been associated with vanity publishing and some commentators have expressed concern about the perceived quality of academic monographs that have been published through the 'Gold' route.<sup>213</sup> This may be another factor affecting the popularity of this publishing approach.

*The 'Green' route to OA*

- 8.32 As we explain in Section 5 above,<sup>214</sup> research funding bodies may sometimes require that research outputs that are published via the 'reader pays' model are posted in online repositories to allow users greater access to published research. The version that is posted is usually a peer-reviewed manuscript and many funding bodies allow research outputs to be posted after the expiry of an initial embargo period.

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<sup>209</sup> See ¶5.8 and ¶5.17 above.

<sup>210</sup> See, for example: Knowledge Exchange (2017) *Landscape study on OA and Monographs* (available [here](#)), page 87 (Figure 2).

<sup>211</sup> See ¶¶8.14-8.18 above.

<sup>212</sup> See Wellcome Trust Open Access Policy (available [here](#)).

<sup>213</sup> See, for example: a 2018 position paper by the British Academy titled: *Open access and monographs: Where are we now?* (available [here](#)), page 3; and Jisc (2018) *Open Access Monographs in the UK* (available [here](#)), page 4.

<sup>214</sup> See ¶5.26 above.

- 8.33 This model, known as the ‘Green’ route to OA, is relatively well-established in respect of journal articles (particularly among funding bodies who are supportive of a full transition to OA). However, it is much less common in respect of academic monographs.
- 8.34 A 2018 study by Jisc found that the ‘Green’ route to OA was only applied by one research institution in the UK and was restricted to a single chapter or 10% of a particular title. Embargo periods associated with the ‘Green’ route appear to be relatively long compared to those associated with research articles (ranging from 6 to 36 months).<sup>215</sup> Many publishers do not currently allow full books to be made available via the ‘Green’ route.
- 8.35 Jisc also found that the online infrastructure for depositing and accessing monographs is less developed than the equivalent infrastructure for journal articles. As a result, monographs are less easily discoverable.<sup>216</sup> As of 2016, only 94 monographs were listed on the Directory of Open Access Books (“DOAB”).

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<sup>215</sup> Jisc (2018) *Open Access Monographs in the UK* (available [here](#)), page 4.

<sup>216</sup> Jisc (2018) *Open Access Monographs in the UK* (available [here](#)), page 2. See also: UUK (2019), *Open Access and Monographs* (available [here](#)), page 26.

### New UKRI Policy in respect of monographs

- 8.36 As explained above,<sup>217</sup> UKRI proposed in its 2020 consultation that the new UKRI Policy would extend, for the first time, to include long-form research publications that acknowledge funding from UKRI and its constituent councils, including academic monographs, book chapters and edited collections.
- 8.37 Although some charitable funders in the UK have previously included monographs within the scope of their OA policies,<sup>218</sup> the existing OA policy framework for publicly-funded research does not extend to long-form publications. The UKRI Policy would therefore set an important precedent for other OA policies maintained by other public and charitable funding bodies in the UK and, indeed, OA policies for monographs maintained by funding bodies abroad. Given that UKRI is the first Plan S signatory to publish an OA policy in respect of monographs, it is also likely that the UKRI Policy would influence any upcoming OA policy for monographs developed by Plan S.
- 8.38 UKRI is still considering the definition of in-scope monographs, book chapters and edited collections. However, UKRI proposed that the final VOR or the “*post-peer-reviewed author’s accepted manuscript*” copy of a monograph must be free to view and download via an online publication platform or institutional or subject-matter repository within a maximum of 12 months of publication. UKRI also proposed that the OA version should be published under a licence that maximises reuse and is appropriate to the content of the work (preferably CC BY).
- 8.39 UKRI proposed certain exceptions for works requiring significant re-use of third party material and works that could only be published by niche presses with no established OA programmes.<sup>219</sup> Trade books, scholarly editions, exhibition catalogues, textbooks and works of fiction would also be excluded from the scope of the new UKRI Policy.<sup>220</sup>

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<sup>217</sup> See ¶¶6.15-6.17 above.

<sup>218</sup> For example, the OA policy maintained by the Wellcome Trust specifies that monographs that acknowledge Wellcome Trust funding should be made available on an OA-basis within 6 months of publication but makes provisions to cover the cost of OA publishing charges. See Wellcome Trust Open Access Policy (available [here](#)).

<sup>219</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶199.

<sup>220</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶198.

- 8.40 Critically, UKRI is still considering how to support the funding of OA monographs, book chapters and edited collections.<sup>221</sup>
- 8.41 It is also anticipated that the UKRI Policy will inform the development of the OA policy for research outputs submitted to the next HE funding review (known as 'REF-after-REF2021'). UKRI explained in its 2020 consultation that "*The UK HE funding bodies' intention is that compliance with UKRI's OA policy will result in compliance with the OA policy for the REF-after-REF 2021*".<sup>222</sup>
- 8.42 However, the 2020 consultation also proposed an exemption for publications that only acknowledge block grant funding from Research England and no other UKRI council.<sup>223</sup> It is therefore unclear how many monographs are intended to be in scope of the UKRI Policy given that monographs tend to support academic enquiry in AHSS disciplines, which are funded primarily through recurrent funding from Research England.<sup>224</sup> It is also unclear whether the proposed exemption would also extend to the OA policy for the next REF.

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<sup>221</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶1110.

<sup>222</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶129.

<sup>223</sup> UKRI (2020) *Open Access Review: Consultation*, ¶127 and FN12.

<sup>224</sup> See ¶8.11 above.

### Challenges associated with assessing the impact of the proposed OA policy on monographs

- 8.43 We have been asked to consider the economic impact of the new UKRI Policy in respect of monographs. However, it is challenging to assess the impact of the UKRI Policy in respect of monographs with confidence for two reasons in particular.
- 8.44 First, as explained above,<sup>225</sup> it is unclear how many monographs are intended to be within scope of the UKRI Policy. Monographs tend to support academic enquiry in AHSS disciplines that are funded primarily through recurrent funding from Research England. However, UKRI's 2020 consultation proposed an exemption for publications that only acknowledge block grant funding from Research England, which suggests that a significant number of monographs produced in the UK may be out of scope of the UKRI Policy. At the same time, UKRI stressed its intention that the UKRI Policy should inform the development of the OA policy for the next REF – and it is unclear whether the proposed exemption for Research England funded outputs would also extend to the OA policy for the next REF.
- 8.45 We assume that the intention of the UKRI Policy is to include a meaningful number of academic monographs funded by UKRI within scope of the UKRI Policy and, indeed, the OA policy for the next REF. We note, however, that the number of monographs published in the UK each year (or, indeed, the number of monographs funded by UKRI) is not known.<sup>226</sup> It is therefore challenging to assess the impact of the UKRI Policy in respect of monographs meaningfully and with confidence.

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<sup>225</sup> See ¶¶8.41-8.42 above.

<sup>226</sup> See ¶¶8.11-8.13 above.

- 8.46 Second, it is unclear what is meant by the reference to the “*post-peer-reviewed author’s accepted manuscript*” in the new UKRI Policy. As we explain above,<sup>227</sup> the process for producing and publishing monographs is different from that for journal articles and entails close collaboration between authors and editors. Furthermore, publisher investment in developing book concepts and facilitating expert review of book proposals happens from the very early stages of the book development process. In this sense, it is unclear what is meant by the ‘author’s manuscript’ and whether this terminology has simply been carried over from policy proposals relating to research articles (which are developed in a way that is different from the process for producing monographs).
- 8.47 We assume that the intention of the UKRI Policy is to refer to the completed commissioned manuscript once it has passed a second round of peer review. In this case, the “*post-peer-reviewed author’s accepted manuscript*” would contain the same research content as the final VOR produced by the publisher and benefit from the time, expertise and investment provided by the publisher.

#### **Impact of the new UKRI Policy**

- 8.48 The UKRI Policy means that, going forward, monographs that acknowledge funding from UKRI and its constituent councils will need to be made available to view and download for free via an online publishing platform or institutional or subject-matter repository within 12 months of publication in their final, published format (or a format that contains the same research content as the VOR).
- 8.49 The UKRI Policy will thereby create incentives for university libraries and other specialised buyers to wait until the expiry of the initial 12 month embargo period before acquiring final (or near final) copies of monographs for free. This is because the cost saving associated with not buying books will represent a tangible financial benefit for libraries in the context of constrained budgets. At the same time, the opportunity cost associated with waiting to acquire a monograph will likely be low given that monographs are typically used to communicate research findings that are not time-critical in nature and that remain relevant for many years after their initial publication.

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<sup>227</sup> See ¶¶8.14-8.17 above.

8.50 The UKRI Policy will also affect authors', universities', and funders' willingness to pay fees for the ability to publish monographs on an OA-basis. This is because the UKRI Policy will establish a new 'Green' route to OA that will be perceived to be 'almost as good as' the paid-for service offered by publishers. There will be limited incentives for authors, universities and funders to pay BPCs to publish monographs, when the 'Green' route to OA will allow readers to access final (or near final) copies for free within a relatively short time period after publication, along with a licence that allows extensive re-use.<sup>228</sup>

8.51 The UKRI Policy will therefore affect publishers' ability to recover the cost of their investment in producing and publishing monographs. This will have knock-on effects on several different groups of stakeholders within the scholarly communications industry. We discuss the impacts on academic publishers, research intensive universities, and researchers in turn below.

*Effects of the proposed policy on academic publishers*

8.52 The UKRI Policy will result in a loss of revenue for academic publishers and affect publishers' ability to recover the cost of their investment in producing and publishing monographs through book sales and OA publication charges.

8.53 This will affect publishers' decisions to commission academic monographs. Commercially-minded organisations will exercise caution in taking on book projects that are publicly-funded but not in receipt of funding to cover the cost of OA publishing in order to avoid potential losses.<sup>229</sup> It is therefore likely that the number of book projects commissioned by commercial organisations will fall materially as a result of the UKRI Policy.

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<sup>228</sup> Although the infrastructure for depositing and accessing monographs online is currently less developed than the equivalent infrastructure for journal articles, we assume that the presence of the 'Green' route to OA (as proposed by UKRI) would create incentives for users and their representatives to make the necessary improvements to enhance the functionality and quality of these services over time.

<sup>229</sup> See, for example: Taylor & Francis (2020) *Taylor & Francis input to UKRI Open Access Review* (available [here](#)), response to Q37 and Q53.

- 8.54 However, we understand that university presses would come under significant pressure to publish monographs written by authors who are affiliated with their institutions even if there is no additional funding to cover the cost of OA publishing. Publishing books without additional OA funding would necessarily create new cost centres and reduce the ability of university presses to remain self-sufficient.<sup>230</sup> It would also affect their ability to contribute towards supporting other (potentially underfunded) activities within their organisations. Any benefits in the form of cost savings to university libraries and other specialised buyers would be distributed among a broad group of public and third-sector entities in the UK and abroad. It is therefore unlikely that the cost savings to the university library affiliated with a specific university press would ‘cancel out’ the losses incurred by the press.
- 8.55 In some cases, publishers will need to explore approaches for containing the cost of publishing individual monographs (or indeed their monograph portfolio) in response to the loss of revenue.<sup>231</sup> Cost containment would impact editorial standards for producing monographs or risk compromising the quality and integrity of published research in other ways (for example, by limiting the scope of research or page count). The UKRI Policy would therefore dilute the value of the research that it is looking to provide access to – to the detriment of the academic community and other users. This would dilute (and potentially even offset) the benefits that could be expected from wider access to the published outputs of research.

*Effects of the proposed policy on research intensive universities*

- 8.56 The UKRI Policy will increase pressure on UK universities to find additional funding to enable their researchers to publish monographs through the ‘Gold’ route to OA. The impact will be particularly pronounced for AHSS departments, who support most of the researchers who produce monographs.
- 8.57 It is unclear at this stage where this funding could be sourced from without an impact or an opportunity cost on other activities within the university sector. UKRI indicated in its 2020 consultation document that it is not necessarily the case that there will be additional funding to cover OA publishing costs.<sup>232</sup>

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<sup>230</sup> See: Oxford University (2020) *Oxford University response to UKRI Open Access Review Consultation* (available [here](#)), pages 21 and 22.

<sup>231</sup> See: University of Cambridge (2020) *UKRI Open Access Consultation – University of Cambridge Response* (available [here](#)), response to Q37.

<sup>232</sup> UKRI (2020) *Open Access Review: Consultation* (available [here](#)), ¶110.

*Effects of the proposed policy on researchers*

- 8.58 Researchers will have fewer opportunities to publish academic monographs as a result of the UKRI Policy. Those affiliated with institutions that operate university presses may be less affected in the short term. However, over time, universities may choose to ration who is able to publish monographs or place constraints on the choice of topic and outlet in an effort to manage spend. Researchers could come under pressure to produce shorter works to bring down the cost of peer review and publishing. Smaller institutions, or those with lower REF profiles, could opt to not encourage staff in the appropriate disciplines to publish refereed books.<sup>233</sup> This would impact researchers' prospects and could discourage talented individuals from working in academia in the UK.
- 8.59 Ultimately, the UKRI Policy would inhibit scholars' ability to conduct research in their respective disciplines in an effective way. This would affect researchers and their institutions and, indeed, the quality of published research. Ultimately, UK research would risk becoming less impactful and less well-regarded, with a knock-on effect on the UK's standing as a global research hub.

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<sup>233</sup> British Academy (2018) *Open access and monographs: Where are we now?* (available [here](#)), page 3.

## 9. Restrictions and limitations

### Restrictions

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## Appendix 1            List of sources

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